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INTRA-URETHRAL OPERATIONS

FOR PATHOLOGIC CONDITIONS IN THE PROSTATIC URETHRA AND AT THE BLADDER NECK *

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LOS ANGELES

That small portion of the body of the male, situated between the inner border of the sphincter vesicae and the triangular ligament, has a greatly varied functional activity determined by its anatomic structure and its intimate relations with the genital and urinary systems, and is very subject to pathologic changes, occasioned thereby. Very few of these ailments may be cured by medical measures alone; most require the services of a surgeon, any surgeon. But there is a class of ills among them that can only be helped by technically trained specialists, possessed of an extensive armamentarium of expensive instruments, and a high degree of mechanical skill in using them that can only be acquired by a prolonged and large clinical experience. It is a special field of surgery in which the general surgeon will always be at a disadvantage. He may take out an enlarged prostate quite as well as the urologist, but he will not be able to tell what is the matter if the result is not good, or correct the defect when it is discovered.

The presence of polypoid and papillomatous growths in the posterior urethra has been well understood ever since the work of Grünfeld and Ultzman in the eighth decade of the last century. As better systems for lighting endoscopic tubes were evolved, these growths were recognized, described and treated more often, especially on and in the immediate neighborhood of the colliculus; but the fact of their great frequency in chronic infections of the glandular structure of the prostate, or of the mucous glands of the prostatic urethra, was not known and appreciated until the advent of the water-dilating urethroscope of Goldschmidt in 1906; and their successful and convenient treatment followed only after men overcame their fears of causing a little hemorrhage and learned to use large-sized, well-lighted endoscopic tubes in the posterior urethra, and had efficient electrical cauterizing apparatus to work with through these tubes.

At present, by the use of the improved diagnostic instruments of Leo Burger, Wossidlo, Gairenger and McCarty, these growths come into the field of vision of the skilful operator like moving pictures on a screen, and float out into the irrigating fluid as the plants in a marine garden move with the tide. It becomes easy to determine their number, position, relative size, pathologic species and attachments. With this knowledge the trained urologist is in a position to attack and destroy them through the modern, well-lighted, open or dilating air urethroscopes of which the MacGowan, Luys, Koch and Marks are the best types. Allowance must always be made for the reduction of the image, as seen by these instruments, from the magnified one presented by the ocular of the water urethroscopes.

CAUSE OF THESE GROWTHS

They undoubtedly originate like papillomas about the outer genitals, through the baring of the papillary bodies, by slight injuries, in the presence of the favoring elements of heat, moisture and chronic infection. While the influences that give rise to a true papilloma or wart and a polypus are essentially the same, there is a marked difference in their clinical appearance. The polypoid growths may readily be divided into two classes:

First, the soft or mucoid, that in their gelatinous consistence resemble the polypi of the ocean, and structurally have but one layer of flat epithelium and one central blood vessel, which is the diagnostic point by which they are to be distinguished from the bullae of bullous edema. This blood vessel is surrounded by a stroma that is negligible. Clinically they are easy to shrivel and destroy by a light touch of a glowing electric point, or a single flash from a high-frequency wire, or even by the topical application of solid silver nitrate, trichloracetic acid, or aromatic sulphuric acid, unless they are situated directly on the bladder neck where they are liable, if disturbed and not perfectly destroyed, to occasion very persistent and sometimes disagreeable hemorrhage.

Second, fibroid polypi. In this class the central blood vessel may be single or branched, it is surrounded by an appreciable stroma and presents, externally at least, two layers of flat epithelium. This type is not so translucent when viewed by the water urethroscope; the central blood vessel is not so apparent, and does not bear the same proportional relation to the size of the polyp. They are not so easy to destroy unless one is fortunate enough to sever the base by the cautery knife or coagulate the central blood vessel by the spark on the first trial. Though either type of polyp may spring from any surface of the prostatic urethra, the fibrous is most apt to be found attached to the lateral walls posterior to the colliculus and grow toward the bladder, or to be attached to the lateral or upper surfaces of the bladder neck, within the grasp of the sphincter or just outside of it. True papillomas or warty growths are

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not so common. It has been my experience that they are found more frequently in front of the colliculus and within the grasp of the external sphincter. They are generally difficult to cure, often requiring many applications of the cautery at intervals of from two to three weeks before they disappear finally.

ADENOID AND CYSTIC GROWTHS

The mucous membrane of the prostatic urethra being abundantly supplied with glands, one would expect to find at times both cysts and adenomas, and we do; the former rather frequently may be single or multiple, and, when not large, are easily destroyed by the cautery. Adenomas occur more rarely, but I have encountered them on the floor and lateral walls of the urethra, both before and posterior to the colliculus and beneath the mucous membrane of the internal sphincter, and have succeeded in destroying them in these situations from within the urethra. I have also seen them several times growing from the superior wall of the urethra just outside of the bladder neck, but to effect their removal I was compelled to operate through a suprapubic wound with rongeurs. Neither the cysts nor the adenomas are, in my opinion, the direct result of infective processes, though the urinary and sexual symptoms occasioned by their presence may be much the same as those seen with granulations, papillomas, polypi, or edema of the colliculus.

It is true that any one of these growths may be the cause of vesical irritation, more or less obstruction of the urinary stream, and even partial or complete retention; hence it cannot be good surgical judgment to conclude that because a man who is 50 or more years of age presents these symptoms of prostatism, particularly when they are accompanied by some apparent enlargement of the gland as indicated by the sense of touch applied through the rectum, necessarily is suffering from an enlarged prostate which he should have removed. He may need nothing beyond having a polypus, cyst or adenoid growth removed through the urethra to rid him of his urinary inconveniences. As an illustration of this I present a case in which the classical symptoms of commencing prostatism presenting themselves, a careful examination of the posterior urethra with a water urethroscope demonstrated polypi and adenoids which, when removed, left the patient without any vesical irritation and with the ability to empty his bladder, though there were evidences in the contour of the urethra of commencing lateral hypertrophy.

Case 1.—Nov. 11, 1914: F. A. F., aged 65, a patient of Dr. Ralph Avery, after a severe wetting in March, 1914, had total retention and had to be catheterized for four days. Since that time he has had diurnal and noctural frequency. The urine is clear, acid, with specific gravity of 1.024; no sugar, no albumin or blood; residual urine, 200 c.c. The prostate, as examined through the rectum, is not enlarged and is of normal consistence.

Cystoscopic examination shows a normal bladder with slight enlargement of the intra-ureteral fold, and a very slight convexity of the posterior segment of the image of the bladder neck.

Endoscopic examination with the water urethroscope shows that, from the anterior sphincter to the colliculus, the floor of the urethra is filled with whitish adenoid growths which do not bleed easily, are not ulcerated, and opening in which a number of glandular ducts may be seen. The impression produced by these new growths is rather that of cancer than simple adenoma. The colliculus, slightly congested, shows plainly the openings of the spermatic ducts and the utricle. Directly posterior to the colliculus a small but perfect pear-shaped cyst swings from the posterior wall on the right side into the stream; further along the acclivé, many mucoid polyi stud the right side of the urethra; much of the remaining mucous membrane is covered with firm granulations and a few small cysts, clear up to the bladder neck.

After a preliminary meatotomy this condition was removed with the electric cautery and solid silver nitrate in eight sittings, from two to four weeks apart, the last on May 24, of this year. The channel is clear and a cure is effected.

In another case I found the entire channel of the urethra from the external to the internal sphincter choked with papillomas and adenomas. The symptoms were those of advancing prostatism without any enlargement to be felt. After tedious removal of all of the growths by the cautery, I found I had still to deal with a contracture of the vesical neck, with a fibroid shelf jutting out over the urethral floor. This was with difficulty removed by a punch operation and sharp rongeurs, assisted by a finger in the bladder through a suprapubic opening. The channel secured was absolutely smooth. Sections of the pieces removed showed the usual fibromusculo degeneration. After a month the Gairenger urethroscope showed an adenoid growing directly in the center of the groove that had been punched through the internal sphincter, presumably from one of the Albarran group of glands. This was becoming obstructive and was successfully destroyed by the cautery, working intra-urethrally through a MacGowan urethroscope.

Case 2.—July 25, 1914: J. H., an oil well driller, aged 45, a patient of Dr. Lissner of Bakersfield gives a history of severe gonorrhea fourteen years ago. He complains now of a continuous uneasy feeling at the neck of the bladder, burning, and obstruction to the passage of urine. The urine is acid, with a specific gravity of 1.020, contains many epithelial cells and a few blood cells, both red and white, no pus, and is otherwise negative. The prostate by rectum is not enlarged, but is rather more dense in the left upper quadrant.

A No. 16 acorn-pointed stricture searcher is arrested at the triangular ligament, but No. 24 Van Buren steel sound passes to the bladder.

Cystoscopic examination by No. 18 Wappler convex sheath shows a healthy bladder. Inspection of the posterior urethra shows a large, raw, edematous colliculus covered with papillomas; a dense adenoma on the right side of the urethra extending from a point just posterior to the colliculus to the bladder opening; a cyst on the left lateral wall of the acclive, and a smaller adenoma of the left wall just above the cyst.

Between July 25 and November 18, these were all removed by the electric cautery, and the Day high-frequency spark, at sittings three weeks apart. Then it was found that, though the channel was clear, there was still difficulty in urinating, and residual urine. On November 27, through a suprapubic opening, I found that there was a marked contracture of the bladder neck and a moderate-sized fibroma growing directly up into the narrow urethral opening from the bladder side, which had not been observed either by the cystoscope or the urethroscope. There was a pocket underneath the vesical sphincter from the urethral side. I cut a channel through this myofibromatous curtain with Young's punch, but was unable to bring the floor of the bladder and that of the urethra to the same level with the instrument and had to complete the undertaking by sharp rongeurs. I afterwards inspected my channel and found it smooth. After a month, when the bladder was healed, another examination by the cystoscope showed a small curiously shaped adenopapilloma growing in the middle of the channel I had cut just within the bladder. This grew rapidly and was per-

sistent, requiring three good burnings with a cautery point through the MacGowan urethroscope, on January 15, February 9 and March 10, before it was finally destroyed. Out of all this work we obtained a free channel with perfect urinary control and a cessation of the annoying symptoms.

From time to time one sees men who have had clean-cut, well-performed prostatectomies, either suprapubic or perineal, from five to fifteen years previously, who, after a prolonged peace, have again symptoms of frequent and difficult urination and partial retention. The natural thought of both layman and doctor is that the trouble is caused by a prostatic renaissance with obstruction—and such a conclusion is neither wild nor improbable, for no man has ever yet succeeded in removing all of the prostate by any of the usual methods of enucleation, no matter how skilful and careful he may be. There is always some glandular structure left in the capsular fragments and the compressed shell, and under favorable conditions further obstructive adenomas may develop. We examine the region of the prostate through the rectum and find only a normal-sized swelling in the prostatic region. We examine the bladder with the cystoscope and find a reasonably normal vesical neck. But when we use the irrigating urethroscope, we find the cavity from which the prostate was enucleated filled wholly or partially with polypi, papillomas, cysts or adenomas, which have grown from the capsular fragments remaining after the some-time prostatectomy. Continuous heat and moisture have favored the development of these fungous new growths in the semiclosed chamber. Patient and cautious use of the cautery and high-frequency spark will destroy them, and with their going the symptoms of prostatism disappear. In illustration of this clinical phase I now present three cases, two fifteen years, and one three years after successful prostatectomy. In the latter case I still have the prostate removed whole and "in its capsule" as Mr. Freyer would claim.

CASE 3.—N. W., aged 79, was operated on by me for enlarged prostate in 1900, through the perineum. In 1905 I removed an adenoid about the size of a large pea, that hung by a long pedicle from the vault of the vesical neck and obstructed the stream. The bladder was closed and after ten days the patient was well again and remained so until October, 1913, when he commenced to complain of urinary frequency and vesical irritability accompanied by loss of weight and strength, and acquired a sallow unhealthy look, and lack of the vigor for which he was always noted among his business associates.

On March 25, 1914, he was brought to me by his physician, Dr. Merrill, for local examination, as stone was suspected. The cystoscope showed very little cystitis, no stone, and a good bladder neck. The prostatic cavity showed a number of adenoids projecting into the channel; some of them had interfered with the passage of the catheter used for irrigating his bladder daily, and were ulcerated from the violence done to them. There were also a few polypoid growths in the neighborhood of the colliculus, and on some of the adenomas near the bladder neck. A belief was entertained that some of these nodules were cancerous, and this was fostered by the loss of weight, and of strength of mind and body, and the irritability and pain in this region without any symptoms pointing to systemic troubles. He was treated from March 25, 1914, to March 1, 1915, the tumors being removed by repeated burnings with the electric cautery at intervals of three weeks. Some papillomas grew just inside the vesical neck, posterior and to the right during the last two months. They were the last to be disposed of, and without the aid of the MacGowan or the Luys urethroscopes they could never have been reached. The clinical result is excellent—a clear channel, cessation of the distressing symptoms, a healthy mucous membrane in the prostatic cavity and restoration of his general health, so that he easily works ten or more hours a day in the managing of his large business interests.

CASE 4.—Feb. 25, 1915: From S. D. C., aged 85, I removed the prostate in 1900 by perineal prostatectomy. He now complains of obstruction to the urinary stream during the past six months, its passage requiring much effort. The emptying of the bladder is only accomplished by his bending or stooping well forward. Examination of the prostatic region through the rectum shows a body about the size and shape of a normal prostate. There is no residual urine. Intra-urethral examination by the Gairenger irrigating urethroscope and the Wappler 18, shows a great number of polypi of the mucous type obstructing the channel from the external sphincter back, and a few fibroid polypi attached to the floor and sides of the cavity back of the colliculus. Two of these swing with the stream into the bladder through the internal meatus. On the roof of the urethra is a large flat adenoma, covered with polypi, like mussels on a rock. This man underwent two attacks on the polypi, once with the cautery February 9, and once with the Day high-frequency current, March 16. He had a secondary hemorrhage from the latter on March 20. He has been much relieved by his treatments but refuses to go on with them through fear of the possibility of more bleeding.

CASE 5.—From W. H. L., aged 76, I removed the prostate July 18, 1912, by suprapubic operation, in one piece after the method of Freyer. The clinical results were exceptionally good.

About Jan. 12, 1915, he sought me again, complaining of a cystitis and the tightening of a stricture of moderate caliber, following a cold. April 23, cystoscopic examination, and urethral examination with irrigating urethroscope showed a general cystitis of a mild grade, and a large fibroid polypus attached to the left lateral wall of the urethra, posterior to the colliculus and extending back into the vesical neck. This was removed on May 2 with the cautery. The symptoms of vesical irritation are much improved but have not entirely disappeared.

In operating on cancerous and chronic inflammatory conditions of the prostate it is often impossible to obtain a smooth channel through the posterior urethra—projecting nodules and capsular protuberances obstruct or occlude the canal, and they cannot be gotten rid of by rongeur, curet or scissors. The combination of the irrigating cystoscope and urethroscope as a means of accurately locating them, and the electric cautery or the high-frequency bipolar spark as a means of their destruction, is particularly valuable, inasmuch as it furnishes the means of relief in, or apparent cure of, cases otherwise impossible to deal with. On this point I report the following case.

CASE 6.—Aug. 23, 1914: A. S. P., aged 74, a patient of Dr. Stockwell, complains of a severe cystitis and retention of urine. There is a history of a prostatic abscess about five weeks ago, which was punctured by a catheter. The prostate is moderately large, but not hard and immobile.

Cystoscopic examination demonstrates an intense general cystitis, a large intra-ureteral bar and a change in the vesical ring, above, to the right and to the left. Urethroscopic examination, by water-dilating urethroscope, shows a colliculus of moderate size; glandular tumors project into the urethra from the right side at the level of and below the colliculus; above the colliculus and on the left side of the urethra, abundant stringy pus can be seen issuing from the glandular ducts. The nodules on the right make a shelf and beneath this is a large cavity or diverticulum that probably marks the situation of the abscess five weeks ago. On August 31 I removed the right side of the prostate with great difficulty by a combination of partial enucleation and the use of cutting rongeurs. The left side could not be

budged. I succeeded only in cutting away a few fragments of it with sharp rongeurs. I ruined the blades of my Young's punch on it without effect. It is curious that this prostate felt reasonably soft from the rectum, but from the bladder it was stone hard to the sense of touch. Microscopic examination showed it to be a carcinoma. It was not thought probable that any permanent benefit would accrue to the patient aside from the relief afforded by suprapubic drainage. As he had bad strictures near the meatus and in the bulb, on September 11 a free internal urethrotomy was done for him, and the strictures treated by dilating until he could take a No. 26 sound easily almost to the bladder neck, where it met with obstruction. On September 29 a cystoscopic and urethroscopic examination with water-dilating instruments was made and showed some cancerous nodules on the right growing on the surface from which the right lobe had been torn. There were also on the left some similar nodules on the bladder neck; and the large longitudinal nodule which represented the left lobe. On October 14, under spinal anesthesia these were sparked with the Day bipolar high-frequency electrodes. The large nodule on the left was attacked in three places; in one place the electrode burned clear through the lobe and the bladder neck. The destruction was extensive and it was not until October 24 that the sloughing surfaces were clean. On October 22 the remaining nodules at the bladder neck were further sparked and also cauterized with a heavy cautery point. On November 29 he was sent home urinating comfortably, emptying his bladder. On Jan. 18, 1915, he presented himself for examination. The posterior urethra was clear, with a good bladder opening, no nodules, no ulcers and apparently healthy. He had no vesical irritation and no residual urine. At this date of writing he is said to be still in good health. The clinical cure could not be more perfect. Of course I doubt its permanency, but certainly radium could do no better.

Such results are not only interesting, they are amazing. It is easily seen that the field of usefulness of the modern instruments for the diagnosis and treatment of growths in the prostatic urethra is a wide one. Nearly all of these operations can be carried out under local anesthesia with stovain, novocain or alypin nitrate solutions, and when this is not sufficient, intradural anesthesia with tropacocain is the method of choice. The subject of the operation must be quiet; under ether or chloroform anesthesia he never is, for it is tedious and difficult surgery, very trying to the eyes and the nerves of the operator, but accurate and satisfactory and a boon to the patient, who is not slow to see that something intelligent is being done for him, instead of the endless and meaningless passage of sounds and dilators, and the instillation of caustic liquids, which seldom relieve, and never can cure this class of cases.

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Strychnin.—Speaking of strychnin Dr. James Mackenzie in *Medical Press and Circular*, July 28, says: "I have carefully sought for its special effect upon the heart, and have found none. When I inquired into the evidence for its supposed good effect, I found it was practically all clinical, and clinical evidence endows the drug with the most diverse properties. It is recommended as a cardiac tonic in slow-acting hearts, and even in heart block it is said to quicken the beat. It is also recommended in the too excitable heart, as when there are extra systoles, and in the rapid heart of acute myocardial affections. It is said to be beneficial in cases of low blood pressure and equally beneficial in cases of high tension and even in angina pectoris. The evidence that can show a drug to possess the property of exciting the sluggish and of soothing the excited, of raising the low pressure and relieving the high, speaks more for unreasoning faith in the drug than for the beneficial properties of the drug itself."

NITROUS OXID ANALGESIA IN OBSTETRICS

ITS ADVANTAGES OVER THE FREIBURG METHOD*

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If the belief that pain is an inevitable accompaniment of labor has, in the past, reconciled mothers to endure it, the joy of successful motherhood has caused them to forget it. Severe pain is not essential to childbirth, and there is no logical reason why women should endure it. For many centuries drugs have been used to relieve pain in surgical cases, but it was only sixty-eight years ago that Simpson introduced anesthetics into obstetric practice. Six years later, when Queen Victoria gave them her seal of approval chloroform *a la reine* became the fashion and analgesia was maintained for many hours in large numbers of cases.

DEVELOPMENT OF ANESTHETICS

The development of anesthetics is an interesting chapter in the history of medicine. Sir Humphrey Davy, in 1800, discovered the anesthetic properties of nitrous oxid, and suggested its employment in surgery in the following words: "As nitrous oxid, in its extensive operation, seems capable of destroying physical pain, it may probably be used to advantage during surgical operations in which no great effusion of blood takes place." In 1818, Faraday showed that the inhalation of ether vapor produced anesthetic effects similar to those of nitrous oxid. Crawford W. Long of Georgia, in 1842, used ether to produce anesthesia during surgical operations. Two years later, Horace Wells had a tooth extracted while under the influence of nitrous oxid. Morton used ether for surgical anesthesia in the Massachusetts General Hospital in 1846, and made the first public announcement of its use for this purpose. In January, 1847, Simpson first used ether to produce analgesia in midwifery. Flourens, in March of the same year, announced the anesthetic properties of chloroform, and Simpson, in November, read his paper entitled, "Notice of a New Anesthetic Agent as a Substitute for Sulphuric Ether in Surgery and Midwifery." From this time there was a rapid development of chloroform anesthesia, while after the death of Wells little use was made of nitrous oxid until after Edmund Andrews, in 1863, suggested its use with oxygen.

SCOPOLAMIN AND MORPHIN IN OBSTETRICS

Steinbüchel of Gratz first used scopolamin and morphin for obstetric analgesia in 1903. Gauss published his first results in 1906. The method was tried by many physicians with varying degrees of success, but until the recent visit of Gauss to America and the magazine publicity given his "Dämmerschlaf," the use of scopolamin and morphin did not become a question of vital importance. The magazines have proclaimed to the women of America that no longer shall it be said: "In sorrow thou shall bring forth children." The "Freiburg method" has been used with some degree of success in a large number of cases, but those who have had the largest experience are agreed that this method

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should be employed only in a well-equipped hospital with a delivery room protected from all noise and confusion. The physician must have had a large experience with the drugs used. The scopolamin must be of a stable brand and freshly prepared. The cases must be carefully selected. Notwithstanding all these precautions, failures are reported in from 10 to 40 per cent. of the cases. From a careful study of the published reports, we are convinced that the "Dämmerschlaf" is not the panacea the lay press has led our patients to believe. Although this method can never come into general use, the suffering during labor is but the tide in the ocean of motherhood, and the desire of mothers is not for amnesia, but for eutocia.

NITROUS OXID IN OBSTETRICS

Klikowitsch of Petrograd applied nitrous oxid and oxygen analgesia to twenty-five obstetric cases in 1880. He used 80 per cent. nitrous oxid and 20 per cent. oxygen, and observed that three or four inhalations rendered the uterine contractions painless without clouding the consciousness. He reported that the uterine contractions were often stimulated and that in no case was there any diminution in their frequency or strength. Tittel and Doederlein condemned the use of nitrous oxid, but they gave it to the stage of anesthesia and it often caused asphyxia.

J. Clarence Webster was one of the first in America to use nitrous oxid and oxygen in obstetric practice. About ten years ago he began to use it in operative obstetrics when ether and chloroform were contraindicated, and gradually extended its use to all types of cases. In 1909 I gave the anesthetic for him in the first cesarean section which was performed under nitrous oxid and oxygen. During that year we gave this anesthetic for all types of operative obstetrics, and in one primipara gave a few inhalations during each uterine contraction for about two hours prior to a forceps delivery in a case of persistent occipitoposterior position. Although at that time we appreciated the value of nitrous oxid in obstetric practice, its use was largely limited to the end of the second stage, as the hospital was not willing to bear the expense of its prolonged administration. Arthur Guedel, in 1911, advocated the use of nitrous oxid and air analgesia during the second stage of labor; but our first knowledge of its prolonged use in America was in July, 1913, when Drs. Lynch and Hoag attended in confinement the daughter of a Mr. Clark, the maker of a gas-mixing apparatus. In that case, Mr. Clark's demonstrator gave the analgesia for more than six hours. Dr. Lynch was very enthusiastic over the results obtained and since then has used it in nearly all his cases. Dr. Heaney, who began its extended use about the same time, is equally enthusiastic.

It is our custom at the Presbyterian Hospital to begin the analgesia whenever the uterine contractions become painful. If started early in labor, we use a higher percentage of oxygen and give three or four inhalations. Later we use less oxygen and allow five or six deep inhalations previous to the bearing-down effort. The gas must be inhaled with the first suggestion of a contraction; after the patient has made strong traction on the straps, which we fasten to the foot of the bed, she is often given another inhalation containing a larger percentage of oxygen. In giving the analgesia the gas-bags should be only about half filled. The mixture required varies considerably and must be determined for each patient.

To understand nitrous oxid analgesia, you must experiment on yourself. Take six deep inhalations of nitrous oxid and note the effect. Try nitrous oxid and air; and nitrous oxid with various percentages of oxygen; take an inhalation of pure oxygen after securing analgesia. With the knowledge thus obtained you may soon become proficient in its use.

CHOICE OF GAS MACHINE FOR ANALGESIA

A satisfactory analgesia in most cases can be obtained with nitrous oxid and air as has been advocated by Guedel. We have used this method with very good results; but it must be remembered that in giving 20 per cent. air we are supplying 16 per cent. nitrogen, displacing an equal amount of nitrous oxid and delaying the analgesia by at least one inhalation.

For the nitrous-oxid-air analgesia we have a machine with an automatic regulator and a foot control. This apparatus has an advantage over that used by Guedel in that we can maintain a constant pressure in the gas-bag and may control the administration throughout labor without assistance. But after considerable experience with both methods, we are convinced that the better results will be obtained when oxygen is used; and while it necessitates a more expensive apparatus and slightly increases the cost of administering the analgesia, we advise its use. In the maternity ward of the Presbyterian Hospital we are using a mixing apparatus equipped with automatic regulators which enable us to maintain a constant pressure in the gas-bag. These lessen the amount of nitrous oxid and oxygen used. For use in the home I have a similar machine, but on a smaller stand, so that it may be carried easily in an automobile. The mixture of the gases is accomplished with a single dial, so that the nurse or intern, if at the hospital, or some member of the family, if in the home, may readily give the proper mixture. Since we wish the patient to make traction during her pains, self administration is not practical during the latter part of labor, although it may be used in the early part.

COST OF NITROUS OXID-OXYGEN ANALGESIA

By using nitrous oxid and air we have maintained analgesia for three and one-half hours with a 100 gallon tank of gas. After considerable experimenting we have made a hospital charge of $1.50 per hour for the nitrous oxid and oxygen used in maintaining analgesia. As we use the large cylinders, it allows for any leakage and usually gives the hospital a small profit.

In no case has it been necessary to maintain the analgesia for longer than six hours. In multiparas it is rarely necessary to give it for more than two hours. In primiparas the labor is usually terminated in less than three hours from the beginning of the painful contractions. Should an operative delivery be necessary, the analgesia is increased to anesthesia. Much depends on the prenatal care of the mother and the position of the child. In maintaining analgesia the confidence of the patient is necessary, and mental suggestion is of great value.

ADVANTAGES OF NITROUS OXID-OXYGEN ANALGESIA

Nitrous oxid and oxygen is known to be the safest of anesthetics. Given to the stage of analgesia it may be administered with safety over long periods of time. Nitrous oxid can only cause death by asphyxia. Dentists give it to the stage of analgesia to thousands of patients every year. It is quickly eliminated and has

no deleterious effects on mother or child. In no case will the analgesia lengthen labor, but rather will shorten it because of better assistance on the part of the mother. We concede that it is easier to carry a hypodermic needle than a gas machine; but the "Freiburg method" may be used only by the specialist, while nitrous oxid and oxygen analgesia may be employed safely and efficiently by all who will. It is as safe in the home as in the hospital. It may be used in all classes of cases, the results varying with the cooperation of the patient and the skill of the obstetrician. It gives an increased control over the patient, in that there are none of the hysterical outbursts so often seen in the delivery room.

Thirty years ago in speaking of the expectant mothers, Lusk warned us that: "As the nervous organization loses in the power of resistance as the result of higher civilization and of artificial refinement, it becomes imperatively necessary for the physician to guard her from the dangers of excessive and too prolonged suffering."

Recent investigations have shown that both chloroform and ether are a source of danger and their use has been limited to the end of the second stage. In an alternating series of cases at a Brooklyn hospital, Allen has shown that the women under scopolamin and morphin are in labor longer and do not feel as well afterward as the women who have the nitrous oxid and oxygen analgesia. Drugs act differently; people have their idiosyncrasies; the hypodermic injection of scopolamin and morphin is beyond recall. But with the nitrous oxid and oxygen analgesia we have eutocia without danger to mother or child. In the use of nitrous oxid and oxygen we have a method which may be used in the home and in the hospital; a method which does not interfere with an aseptic technic.

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MORPHIN AND SCOPOLAMIN AMNESIA IN OBSTETRICS*

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Just a year ago, through the publication of an article in the lay press describing painless labor as conducted at Freiburg, the interest of the women of this country was awakened in the so-called "twilight sleep," and since that time women have been calling for its general adoption, while the profession, as a whole, has refused its endorsement, claiming that the merits of the method are not proved. It is my purpose in this brief paper to present the facts, without prejudice or bias, based on a most careful study of this form of amnesia in both Europe and America.

Before taking up a consideration of the method, its indications, advantages, and limitations, we must settle whether a woman is entitled to relief from pain in labor, for some claim that because labor is a physiologic process there is no need of using anything to ameliorate suffering. With this I cannot agree, for physiologic acts are better and more easily performed when one is insensible to physical pain.

"Dämmerschlaf" is a partial narcosis produced by morphin and scopolamin, which should be so light as to eliminate memory of subjective pain without interfering with the uterine contractions. In reality it is an amnesic state in which the patient forgets the successive events in her labor. This effect is produced by individualizing the patient and inducing the "twilight" state, as it is called, by administering an initial dose of $\frac{1}{6}$ or $\frac{1}{4}$ grain of morphin muriate and $\frac{1}{130}$ grain of scopolamin hydrobromid. The morphin is seldom if ever repeated; the scopolamin is repeated in doses of $\frac{1}{400}$ to $\frac{1}{200}$ grain, at varying intervals, until the desired effect is attained. Going into the twilight state is very similar to going under an anesthetic: the personality of the operator, the confidence of the patient, the quiet of the environment, have much to do with the ease of the patient's transition from consciousness to unconsciousness.

The critics of this method claim that it is dangerous to both mother and child; that it does not benefit the patient, for the successes are so few and the effects of the drug so unreliable, that its further trial is not justified; that it prolongs labor; that it provokes postpartum hemorrhage; that it is impossible to maintain an aseptic technic because of the necessity of more frequent examinations to watch the progress of the labor. Also that owing to the delirium and restlessness produced by the drugs it is difficult to maintain the aseptic drapings *in place*, and that the eye and mental symptoms persist in a certain proportion of the cases. All of these criticisms must be refuted or admitted before morphin-scopolamin amnesia can take a place in rational obstetrics.

Dr. Ralph M. Beach and I have studied over four hundred labors under scopolamin-morphin amnesia occurring in our services at Long Island College Hospital, Methodist Episcopal Hospital, and Jewish Hospital, Brooklyn. In this series there has been no maternal mortality, and less than the usual morbidity. No child has been born dead. There has been no case of postpartum hemorrhage following any of these deliveries. A moderate degree of oligopnea has been present in 15 per cent. of the cases. Real asphyxia was noted less frequently than after ordinary labor. Three children died within the first ten days after delivery. All three were necropsied and the following were the pathologic diagnoses: diaphragmatic hernia with transposition of the viscera; hemorrhage into both suprarenal capsules; and microcephalus. The lungs were specially examined for atalectasis, with negative findings. Certainly the most skeptical cannot say that the scopolamin caused these deaths. The condition of the baby at birth and the spontaneity of its first cry are determined by the skill of the operator in producing the "twilight state" with the minimum dosage, and the length of time of the second stage. As Dr. Beach has so admirably said: "A certain number of women are destined to need a forceps delivery, twilight or no twilight, and it is poor judgment to wait indefinitely for a spontaneous labor in these cases, to the detriment of the baby."

Our critics say that these are selected cases, which is true. For of all the women who have elected to come to us to deliver them, over 50 per cent. were private patients, either primaparas who feared confinement under the usual methods, or women who had had previous children with forceps or had had dead-

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born children after difficult labor, and were willing to make the sacrifice to come to Brooklyn.

These records include eleven cases of cardiovascular disease, in which there had been or was present a break in the cardiac compensation; two cases of exophthalmic goiter; six cases of pulmonary tuberculosis; eight eclamptics and twenty-two borderline contractions in which a test of labor was given. Hence it will be seen that we have not confined our energies to the normal case and excluded the pathologic.

To use morphin-scopolamin amnesia properly, certain requisites are necessary: first, a fundamental knowledge of the principles of obstetrics; second, a rational conception of the degree of amnesia to be obtained; third, the attendance of trained operators; fourth, the willingness on the part of the operator to give the time necessary to the proper conduct of the case; and finally, a proper hospital environment. From our experience we cannot comprehend the failures recorded by even good men with this method, unless those in charge of the services do too little and expect too much to secure success. The same sane obstetric principles apply just as much to the conduct of a labor under morphin-scopolamin as when no medicinal aid is used. A woman must have labor pains; the cervix must be dilated; and the presenting part and fetus must be able to pass through the pelvis at both the inlet and outlet, in order that the child may be born. Dilatation takes time and pain, and hundreds of our present-day women tire before this dilatation is complete and are subjected to the trauma consequent on untimely surgical intervention.

We may expect amnesia (no memory of the progress of the labor) in from 70 to 80 per cent. of the cases, and though the patient may have islands of memory, the course of the first stage is always eased and the first stage in primaparas actually shortened. Dilatation of the cervix is promptly effected. This is especially noticeable when the membranes have ruptured early. The greatest advantage gained by the use of scopolamin-morphin is that it affords time for the natural processes to obtain the complete dilatation of the cervix, which admits, if there is any disproportion between the head and the pelvis, that the presenting part is driven farther into the pelvis, and consequently should operative procedures be necessary they are of trivial moment. This to my mind has been conclusively shown by the fact that there has been a great reduction in the median forceps operations, not only in our own clinics but in other clinics in this country in which twilight sleep has been used.

Granting, for the sake of argument, that "dämmerschlaf" is a rational obstetric procedure, what are its indications? It may be used in any labor in which the pains are actually established and there is no marked disproportion between the head and the pelvis. It is especially suitable in long, painful, first-stage labors, or in minor degrees of contraction when it is desirable to give the woman a full test of labor, and in the neurotic women of the mentally and physically unfit class. It is contraindicated in primary uterine inertia, marked pelvic contractions, accidental hemorrhage, placenta praevia, the presence of a dead or dying fetus, as well as in obstetric emergencies, as prolapsed cord, prolapsed arm, and transverse presentations in which the membranes have long been ruptured.

From our experience we can state with reasonable positiveness that this method has certain definite advantages; namely, first, the patient, in from 70 to 80 per cent. of the cases, has a practically painless labor; second, that the nerve exhaustion which comes after prolonged labor is absent when morphin and scopolamin have been used properly; third, that the milk secretion is definitely increased, as shown by the gain in weight of the children in our series; fourth, that the cervix dilates more easily under this form of medication, hence cervical injuries are less frequent; fifth, that the number of midplane forceps operations is diminished; sixth, that the cardiac patients, even when there is some break in compensation, go through labor with a minimum of nervous apprehension and less muscular effort; seventh, the toxemic cases, even with increased blood pressure, go through labor with less likelihood of convulsions, and the urinary output is not affected; and, finally, more babies are born alive owing to the more accurate observation of the fetal heart, and the observance of obstetric indications than is common under ordinary methods. The dangers to the mother are practically nil, to the child the danger is from the prolongation of the second stage due to overdosage, and there is an interrelation between these two.

We have found little difficulty in watching the course of labor by abdominal and rectal examination, and in this way the number of vaginal examinations has been minimized. During the second stage the fetal heart should be auscultated every fifteen minutes and any change in its rhythm or rate noted. A prolonged second stage is injurious to the child and we meet this condition by the application of a tight abdominal binder, forced flexion of the thighs on the abdomen, expressio foetus, pituitary extract when the head is on the pelvic floor, and a median perineotomy in the presence of a rigid perineum. A proper appreciation of these suggestions will minimize even the number of low forceps required to terminate the second stage. The very severe pain of this stage may be relieved by nitrous oxid and oxygen, as suggested by Webster and Lynch, or the employment of a few drops of chloroform.

In the better class of patients there is little or no delirium. In the lower and more ignorant class considerable restlessness is always noted in the second stage. From my personal experience and from the admirable statistics based on 1,000 cases collected by Dr. Beach, which include the work of twenty-six different operators, we can draw the following conclusions:

1. The twilight sleep state is a reality and is applicable in any labor in which there is no primary inertia, marked pelvic contraction, or the presence of obstetric accidents.

2. It is especially applicable to nervous women of the physically unfit type.

3. It is a valuable adjunct in the management of borderline contractions, for it allows the woman a full test of labor.

4. It is distinctly a first-stage procedure and bears the same relation to the first stage as chloroform and nitrous oxid bear to the second stage: it relieves the pain but does not inhibit the progress of labor.

5. It is particularly useful in cardiac cases as it relieves the nervous apprehension and secures dilatation with less muscular effort.

6. It diminishes the shock of labor, whether that labor be normal, prolonged or operative.
7. It does not diminish the milk supply.
8. It does not predispose to postpartum hemorrhage.
9. It does decrease the number of high forceps operations.

And, finally, it has a distinct place in hospital obstetrics, and should be tried out by those who have control of sufficient material definitely to determine its position in obstetric practice.

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ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. DAVIS AND POLAK

DR. WALTER E. LIBBY, Los Angeles: As my experience has been limited to the use of scopolamin and narcophin during labor, my discussion will cover that phase of the subject. This experience is based on forty-two cases observed at the University of California Hospital. Of these cases, twenty-one were multiparas and twenty-one were primiparas. They all had normal pelves and in every case the fetus presented by the vertex. The technic followed was that advocated by Siegel—a definite amount of the drugs at a stated interval. We found that if this schedule was followed implicitly, in some instances the anesthesia was too deep, resulting in asphyxiation of the child. In other words, this method represented the maximum dosage. Believing that the asphyxiation was due to too much narcophin, we have eliminated it except in the first dose. Moreover, we have attempted to individualize each case as to dosage. This has yielded good results and in our last twelve cases not a single case of asphyxia has been encountered. Supplementary anesthesia by chloroform was used, as is our custom, except in eight cases. These exceptions were made in order to demonstrate the effectiveness of the anesthesia. Although none of these patients remembered anything about the delivery, we believe better technic results if chloroform is given. Results of this series are as follows: total number of cases, 42; successful cases, 35, 85 per cent.; partial success, 2, 4 per cent.; failures, 5, 11 per cent.; largest number of doses, 12, covering a period of nineteen hours; average dosage, 5. The effect on the mother was negligible. Excitement which required attention occurred three times. Thirst was observed in about two thirds of the cases, but was never distressing. Muscular twitchings were noted twenty-eight times. Slight acceleration of the pulse rate and other circulatory disturbances of a minor character, such as flushing of the face, were noted. The effect on labor was as follows: 1. Prolongation, multiparas one hour, primiparas two to three hours. The third stage of labor was normal. 2. Pituitary extract was used eleven times, but only four times successfully. In the remaining seven cases forceps were necessary. 3. Forceps were used seven times, 14 per cent.: two times a midforceps and five times a low. The effect on the child varied according to the dosage. Alarming asphyxia occurred six times and all of these patients required resuscitation with hot and cold water for a period of fifteen to thirty minutes. Since our change in technic deep asphyxia has been absent. One fetal death occurred and necropsy revealed a perforate intraventricular septum, stenosis of the pulmonary valve with dilatation of the pulmonary artery and hypertrophy and dilatation of the heart. No detrimental effect on the child during the puerperium was noted.

DR. W. FRANCIS B. WAKEFIELD, San Francisco: I have confined my eighty-one patients under scopolamin anesthesia. I am sorry because Dr. Davis chose exactly the title that he did for his paper. I think it is to be deprecated that we should make comparisons that might, perhaps, have an influence on the minds of those listening to us, between one good method and another good method. It is evident to me that Dr. Davis has had no personal experience with scopolamin as an anesthetic in labor, and that he has had a great deal of useful experience with nitrous oxid. The same thing may perhaps hold true with Dr. Polak, with the thing reversed. I think it is high time that the American obstetricians were willing to try out these different methods of ameliorating the pain of childbirth and let each one choose the one which appeals most strongly to him, and which has given the best results in his individual experience. So far as I am concerned, I have been using for the last thirteen months, in my private work entirely, scopolamin amnesia, and it has given me thoroughly satisfactory results. I can concur in almost every statement that Dr. Polak has made. I don't see why he excludes the women with dead babies from participating in these benefits. I have had two women who came to me within the last month, in both of whom there was every evidence of a dead fetus, and the history in the first case would show that the fetus had been dead ten days, and in the second case eight. In these I induced labor and put them under scopolamin anesthesia as in the others, because I see no reason why they should be deprived of painless labor. I cannot agree with Dr. Davis when he says that the statements that have been made in the public press for the most part are erroneous. I believe that the *Dämmerschlaf*, properly used, does carry out practically all the rational statements made in the popular press.

When I speak of the "twilight sleep" I wish to speak of one single technic which originated at Freiburg, the Gauss technic, and no other. There has been a lot of work done in a haphazard kind of way with other forms of technic, using scopolamin as a basis, and some of the results have been very bad. I cannot agree with the statement of Dr. Davis that these patients, after scopolamin amnesia, did not feel as well as with nitrous oxid. I have used nitrous oxid to some extent, and one of the most remarkable things about the scopolamin amnesia is that these patients, when they waken from the sleep (and it is a couple of hours before they wake up; we let them have their sleep out), wake with all their vital forces thoroughly aroused. They feel good and strong and active and I have great difficulty in keeping most of these women in bed twenty-four hours.

DR. JENNINGS CRAWFORD LITZENBURG, Minneapolis: I think perhaps, I am in an enviable position. None of the gentlemen who have spoken here have had experience with both methods; I have. After I returned from Europe I thought it the duty of every man with a clinic to experiment with the *Dämmerschlaf*. This has been done for the past several months in the University Hospital in Minneapolis.

Some difficulty has been experienced in keeping my associate from becoming overenthusiastic. We have to warn ourselves continually that our series is small; it is yet less than one hundred. However, I cannot quite understand some of the dire results that have been obtained in some other hospitals, or why certain hospitals in this country have forbidden the use of the *Dämmerschlaf*, because our results have been, as far as we have gone, satisfactory. The series is so small that we are not willing to draw final conclusions. I am simply reporting the results. They are about the same as Dr. Polak's: about 15 per cent. of failures or practical failures and no fatally asphyxiated children. Only three had to be tubbed for asphyxiation; sometimes there was only very mild delirium in the mother.

In the use of nitrous oxid my experience has been delightful. The women are enthusiastic about it. They also have the "twilight" condition. The next day, even though they had complained during the labor, they say they have forgotten that they did and that they knew they were bearing down, but that they felt no pain whatever. In other words, there is a twilight condition with the nitrous oxid. I have been averse to using it in the private home, because in all my work I have had the expert anesthetists of the hospital give it, and only in the hospital, and I would like to ask Dr. Davis if his statements about the small danger of it can reasonably be true. I have felt with the experience we have had in surgery perhaps there might be some danger with the nitrous oxid in unskilled hands. Allow me to say that it shortens labor.

DR. CARL G. PARSONS, Denver: As a professional anesthetist for the last twelve years, I have had a good deal of experience in all sorts of anesthesia and also in *Dämmerschlaf* (Gauss method).

The various ways of administration and dosages of scopolamin have tended to bewilder the profession, so it seems pertinent to outline the different methods of use of this drug alone or in conjunction with other drugs: 1. As a preliminary to anesthesia, both local and general. 2. As a true hypodermic anesthetic (surgical anesthesia) without the addition of any inhalation anesthetic. 3. As *Dämmerschlaf* (Krönig-Gauss-Freiburg method). 4. Innumerable modifications of No. 3. 5. When given for therapeutic purposes.

DR. CARL L. HOAG, San Francisco: Dr. Davis in his admirable paper has not given us any information as to the degree of relaxation of the perineal muscles under nitrous oxid and oxygen compared with that obtained when using chloroform or ether. From my rather extensive experience with nitrous oxid and oxygen in the surgical field, I should say that the main reason why this anesthetic has not rapidly supplanted the others is that by itself it does not give sufficient muscular relaxation. A similar failure of relaxation in the perineal muscles would greatly increase the risk of tearing and might offset any other advantages the new anesthesia might have over the old. The added feature that makes nitrous oxid and oxygen the anesthetic of choice in surgery is the local blocking of impulses from the operative area to the brain—Crile's "anociassociation." In the early part of this year I began to apply this principle in the obstetric field. Using nitrous oxid and oxygen as Dr. Davis has described; when the head begins to distend the perinæum in the second stage, the vulval edges are turned back and the levator ani muscles and perineal body are thoroughly injected with novocain. When this is well done the effect is striking. The same relaxation can be secured here as in the abdominal muscles. The injection of this region with novocain has been done so many times in rectal and perineal operations that we need not fear edema, hematoma, infections or delayed healing. The effects of the drug on the child must be slight, if any. Similar amounts have been used without deleterious effects in many cesarean sections.

DR. L. I. BREITSTEIN, San Francisco: These methods of anesthesia are very important and have merit. They should be used when properly indicated. No one should limit himself to a routine method. Each case should be individualized and the form of anesthesia best suited to the case in hand should be employed. For instance, in dealing with a primipara—one who is full of fear, who cannot stand pain, who is of an hysterical nature—morphin-scopolamin anesthesia is best suited in that particular case, because these drugs have a selective action when it comes to allay fear and produce amnesia. On the other hand, in a multipara who has had three or four children, whose soft parts are relaxed and who has short labors, the anesthetic of choice would be a few whiffs of chloroform as the head passes over the perinæum. It is ridiculous to try to give such women the "twilight sleep." Furthermore, take the cases you see for the first time at the end of the first stage of labor, or during the second stage; these cases are best treated with the nitrous oxid and oxygen method. You have to individualize your cases. My experience with nitrous oxid and oxygen has been limited to seven cases and my only objection has been the expense. Dr. Davis spoke of the ridiculously low cost for the administration of nitrous oxid and oxygen. My experience has been otherwise.

The prospective mother now consults the obstetrician early to find out if her particular case is suitable for the "twilight sleep." She has been informed that certain examinations —urine, blood pressure, etc.—are necessary. She knows that these examinations have to be made at regular intervals. In other words, we get the patients early and we can give them good prenatal care. During labor the condition of the fetus is ascertained by repeated examinations. The constant presence of the obstetrician insures early detection of complications. I do not wish to be misunderstood; I make it understood that obstetric anesthesia is not a panacea for all obstetric complications that are apt to arise.

DR. M. W. KAPP, San Jose, Calif.: I am one of the little fellows from the country, without a hospital or the material to give the nitrous oxid. I have not the help always to give the *Dämmerschlaf* treatment, but I have had experience with another line with which I have had broad success. I have found something that for four years I have used with perfect success and safety. It is so ridiculously simple that you will laugh at it, but try it some time when you are all alone and the woman crying out in agony. It is heroin, and it will work in every case except in uterine inertia. I have used it in about 140 cases. Heroin one-twelfth grain hypodermically as soon as the pains become severe, no matter what stage of labor. You get the full effect in fifteen or twenty minutes and it will relieve the patient be she primipara or multipara. It does not produce amnesia but it does produce sufficient analgesic effect so that the patient will "rise up and call you blessed."

DR. E. M. LAZARD, Los Angeles: On hearing the favorable reports of those who have preceded me, I wonder why the *Dämmerschlaf* has not been adopted by all the practitioners throughout the country. I am the more diffident in speaking on this subject after a remark by one of the preceding speakers that usually a critic does not know what he is talking about. I have had no experience with the *Dämmerschlaf*; frankly, I have been afraid of it; I felt that the claims of the lay journals were, to say the least, overdone. Some of the points of doubt in my mind have not been changed by the speakers this afternoon, and I would like to ask a question or two. The impression prevails among the laity that all women should have the benefit of the *Dämmerschlaf*. In Harrar and MacPherson's report they say that to not more than 25 per cent. of the women that come into the hospital in labor can they apply this, because the labor is too far advanced, and in that 25 per cent. of cases they have only 70 per cent. success. I would like to ask Dr. Polak to what percentage of women who come into his lying-in clinics in labor is the method applicable? Nothing has been said as to the memory test. Krönig and Gauss lay particular stress on this portion of the technic, saying that the entire method must stand or fall by the memory test. If I am not mistaken, Dr. Wakefield, who has spoken, and who has reported favorably on his cases, has done away entirely with the memory test. Am I correct, Dr. Wakefield?

DR. WAKEFIELD: That is correct.

DR. LAZARD: I would not call that the Freiburg technic, because the Freiburg authorities insist on the memory test as a control of dosage; so nearly every observer has some modification of the method as elaborated at Freiburg. From reports from the various clinics we hear of wild delirium, and this question has been minimized by the speakers. I would like to ask them what their experience in this regard has been. The Michael Reese Hospital gave the method a thorough trial, and, in THE JOURNAL, gave, as you probably all know, a very unfavorable report of their experience. Dr. Frankenthal, who is in charge there, had made the suggestion that possibly an impending rupture of the uterus might be covered up by the drugs, and in their series they report one case with rupture of the uterus with a fatal ending. This was not considered due to the drug, but there would appear to be less likelihood of detecting symptoms of an impending rupture with a patient under *Dämmerschlaf*.

DR. L. M. GATES, Scranton, Pa.: Like all new methods, there has been a constantly changing technic, and it is the early technic with the large and repeated doses of morphin that caused the death of the babies. If that is the case, cannot we, by some other method produce the same results? I would suggest first the use of scopolamin; then, if you need morphin, use it later. I have tried it and find you can accomplish the results without the use of morphin. In one case recently, that of a weak patient with a poor heart and valvular lesion, a decided blonde to whom I did not desire to give morphin, crying for help, I gave $\frac{1}{200}$ grain of scopolamin.

She quieted down and worked hard and it accomplished the same result. If heroin is better than morphin, why not use it, and in small doses along with scopolamin?

DR. HUGH S. MOUNT, Oregon City, Ore.: I concur in the remarks of Dr. Polak on "twilight sleep." I do not wish to go into details of cases, but we have had excellent results.

If the general practitioner feels that he can use "twilight sleep" and make a success of it, he is mistaken. He will have to give up his other practice, because he will have to sit on the job from the time labor starts until it is finished; that has been our experience. It ties you up for fifteen to twenty hours, and you have to know every minute what the mother is doing, and the baby as well. You have to have a history of every pain. Who is there in general or surgical practice that wants to take a case like this and sit down to make the history? It is a fine thing for the mothers, and if it does nothing else, will raise the standard of obstetrics.

This country is being flooded with proprietary drug preparations, to which the President of the Association called our attention this morning. There have been several representatives of this class to see me who have "twilight sleep" put up in tablets, principally morphin, and they say they make *real* "twilight sleep." I want to call your attention to the fact that these are dangerous, and I have no more respect for the physician that would give repeated doses of these than for the one who would give a pound bottle of chloroform to the husband with instructions to use it when labor begins.

"Twilight sleep" is a good thing in the hands of those who have the time and technic for it. Every woman who takes it wants it again; even if amnesia be not complete, they desire the relief from the mental suffering that it gives.

DR. WM. R. LIVINGSTON, Oxnard, Calif.: I have had about forty-five cases in which I employed "twilight sleep" since my return from Freiburg last autumn, and the results have been very satisfactory. A constant surprise to us has been the condition of these women postpartum. Following these labors there seems to be an entire absence of the customary shock. To further this, we are careful that the post delivery sleep is as long as possible. On the following day there is difficulty in keeping these patients in bed, and we usually get them up on the second or third day. In every consideration of the subject of "twilight sleep" we should recognize, first, that there is a technic of Gauss, with individualization of the patient, and in which the dose of morphin or other opium derivative is seldom repeated; second, that there is a technic of Siegel, with a prearranged schedule, and that this was an experimental attempt to standardize the treatment; third, the use of morphin with each injection of scopolamin is sometimes wrongly spoken of as "twilight sleep"; and fourth, there is a tendency to use the term "twilight sleep" in any treatment in which some opium derivative, as for instance, heroin, is given alone. These different procedures must not be confused if we are to have any definite understanding of the subject. I believe most of the men who have had favorable results have followed the method of Gauss. I think those who have followed Siegel's technic have found it unsatisfactory, because they did not individualize the patients. The attempt to follow this prearranged schedule is the probable reason for the unsatisfactory reports of some of the earlier cases. I believe we are all coming to the individualization method of Gauss.

DR. CARL H. DAVIS, Chicago: I have no intention of condemning the use of scopolamin and morphin when it is used at the patient's request, and according to the method outlined by Gauss. If we are to believe the public results of Gauss and other observers, its use by the general practitioner must be condemned. It would be splendid if every woman could go into an especially equipped hospital for confinement. We hope that the obstetric standards will greatly improve, and that large endowments may be secured for maternity hospitals. But at present few women are delivered by the obstetric specialist, and a method which cannot be used safely by the general practitioner will be of no assistance to most mothers.

Nitrous oxid and oxygen analgesia has in our hands relieved the suffering in every case. Since we only give from four to six deep inhalations in securing analgesia, the assistance of a trained anesthetist is not necessary, provided one uses a simple apparatus such as we use at the Presbyterian Hospital. As stated in the paper, we can maintain analgesia for more than three hours with a hundred gallon tank of nitrous oxid. While the cost is increased by using the small tanks which must be employed in the homes, the cost should average from four to six dollars and rarely exceed twelve dollars. But you must be careful not to allow a leakage, as it will prove expensive. I find that most patients are willing to pay for the gas.

A combination of two methods, as was suggested by Drs. Polak and Litzenburg, may be of value in selected cases. The use of morphin or heroin either alone or combined with chloral hydrate has long been employed in cases with a protracted first stage. It is possible that the scopolamin might be better than the chloral. We have not had occasion to combine the methods although our staff have discussed its possibilities.

The perineal injection of novocain has been used in Chicago. About a year ago M. L. Harris blocked the nerve and did a low forceps delivery. Dr. Heaney has used it in combination with the nitrous oxid analgesia. While it is of great help in destroying the pain, I fear that it might increase the number of lacerations. The combination of nitrous oxid and oxygen analgesia with the local anesthesia with ½₀₀ grain novocain is the ideal anesthetic for cesarean section. I trust that during the next year the members of this section will try the nitrous oxid and oxygen analgesia. In selected cases try the combined methods, but remember that it is rarely necessary.

DR. JOHN O. POLAK, Brooklyn: It seems that those men who are really trying this method are beginning to come to the belief that there is something in it. The unfortunate position that we have been in in the East has been that those who would not try it damned it, and those who tried it lauded it. I agree absolutely with those who said we should individualize each patient. It is only a small proportion of the patients brought into our maternity service by the ambulance on which this method can be used. It is the patients whom we send in at the expected date or a few days before on which we use this method throughout, for the reason that the patient cannot be too far advanced in labor if we are to get a good amnesia. The danger is the prolonged second stage. We have obviated this by not using it or beginning it too close to the beginning of the second stage. We practically discontinue the method and substitute either gas and oxygen or chloroform for the second stage. This continues the amnesia produced by the scopolamin. In other words, we have done what Crile does: given them their preoperative doses of morphin and scopolamin.

The danger to the child is threefold: (1) overdosage; (2) in interference with the uteroplacental circulation after the rupture of the membranes; and (3) the prolongation of the second stage due to the breaking of the rules of obstetric procedure, that is, letting the second stage go beyond two or two and a half hours.

We are holding a necropsy on every baby that dies, and are learning that babies die from causes independent of the anesthetic and nonclosure of the foramen ovale. It is for this reason that I said in my paper that we would not give it in case there was a dead or dying child.

We test the memory by noting whether the patient remembers the last hypodermic injection. If the patient has lost memory of the last hypodermic injection and does not know when that was given or how many injections she has had—we do not try to wake her up by dolls or watches or anything of that sort.

We have had a few cases of delirium just as the head was passing over the perineum. This has been in foreign women. In the better class of women we have had practically no delirium. These patients go to sleep and wake up three hours afterwards, with no bad results.

THE TREATMENT OF HIGH BLOOD PRESSURE *

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During the past ten years I had under observation for longer or shorter periods of time approximately five hundred cases of abnormally high blood pressure. Only cases showing a systolic pressure of 160 mm. or over are included in this material. Prior to the standardization of diastolic readings, the stethoscopic fourth phase method being used, no reliable record of diastolic pressure was possible in clinical work, owing to shortcomings in technic. Since the introduction of this method, stethoscopic estimation of diastolic blood pressure has been made a routine part of every observation. Of cases so studied there have been 130, and I propose to submit this material to a brief analysis. Seventy-four of these patients were males and fifty-six females. The average age was 54, and average pressures: systolic, 195 mm.; diastolic, 117 mm.; pulse pressure, 78 mm. The average age of male patients was 55 years, with average pressures: systolic, 189 mm.; diastolic, 119 mm.; pulse pressure, 70 mm. The average age of female patients was 55 years, average pressures: systolic, 193 mm.; diastolic, 115 mm.; pulse pressure, 78 mm. (Table 1).

TABLE 1.—AVERAGE PRESSURE IN CASES STUDIED

Total number of cases	130
Males	74
Females	56
Average age	54
Average systolic pressure	195 mm.
Average diastolic pressure	117 mm.
Average pulse pressure	78 mm.

CLINICAL GROUPS

A review of my aggregate material would appear to show that cases of high blood pressure lend themselves broadly to a certain clinical grouping somewhat as follows:

1. Secondary or symptomatic high blood pressure.
2. Neurogenic high blood pressure.
3. Essential high blood pressure.
4. Nephritic high blood pressure.
5. High blood pressure heart failure.

1. Secondary or symptomatic high blood pressure occurs in association with a variety of pathologic states. Principal among these are states of increased intracranial pressure, aortic insufficiency, asthma and emphysema, chronic thyroidism, uterine fibroids, diabetes mellitus and syphilis. In cases of this character, the treatment of the primary etiologic factor may exert a marked influence on the secondary vascular reaction. In the high pressure of chronic thyroidism, a partial thyroidectomy may be followed by a decline to normal, as happened in a case observed two years ago in which successful operation reduced the blood pressure from 190 mm. to 150 mm., at which point it still remains. Myomectomy in two of my cases was followed by the same favorable effect. In the elevated pressures of chronic diabetic subjects, the surest way to influence the blood pressure is to secure control of the diabetes. Syphilis is a not infrequent cause of vascular degeneration and high blood pressure. A positive Wassermann test immediately suggests the employment of antisyphilitic medication. Of the series now under consideration, ten cases were subjected to vigorous antisyphilitic treatment. The results were in every instance disappointing, little influence on the blood pressure curve being secured.

2. High blood pressure of apparently neurogenic origin has been observed. In this group possibly belong the elevated blood pressures occurring about the menopause in neurotic women. When this manifestation was not accompanied by urinary signs of nephritis, the outlook proved good, a gradual decline to approximately normal figures being frequently observed. A good instance of this type of case is furnished by a woman, aged 50, with palpitation, flushing and emotional instability, and a blood pressure: systolic, 190 mm.; diastolic, 140 mm. Two years later her pressure is: systolic, 135 mm.; diastolic, 90 mm.

Transient high pressure waves in individuals under severe nervous strain and in patients with insomnia are not infrequent. These occur mainly in individuals in middle life who rarely are without some evidence of vascular degeneration. One patient recently under observation had vascular crises with systolic pressure registering as high as 190 mm., accompanied by vertigo. Following the settlement of distressing family difficulties, the systolic pressure declined to 140 mm., where it now remains. Another instance in point is the case of a man of 55 who, while passing through a serious business crisis, displayed a systolic pressure of 190; diastolic, 100 mm. Following settlement of his difficulties, and rest, his pressure returned to his former average normal: systolic, 150; diastolic, 90. Still another patient, aged 69, had a systolic pressure of 190; diastolic, 100, following the death of his wife. His systolic pressure now, two years after, is 145, diastolic, 80. This spastic or neurogenic origin of elevated blood pressure in individuals without albuminuria should be kept in mind, as it may prove an important factor.

3. I shall not discuss the problem as to whether or not every case of persistently elevated blood pressure is produced by an underlying nephritis. The point is not easily settled and cannot be dismissed arbitrarily in the affirmative, as is done by some writers on the subject. Whatever view we incline toward, there is no doubt that cases with and without albuminuria form two clinically different groups, differing in the severity of their symptoms and complications and differing in their prognosis and amenability to treatment. For the purpose of this discussion I shall adopt the designation "essential arterial hypertension," suggested by Janeway, for those cases not displaying urinary evidence of nephritis. In Table 2 are recorded fifty-nine instances of high blood pressure without albumin

TABLE 2.—AVERAGE PRESSURES IN FIFTY-NINE CASES WITHOUT ALBUMINURIA

Cases without albuminuria	59
Males	27
Females	32
Average age	55
Average systolic blood pressure	179 mm.
Average diastolic pressure	109 mm.
Average pulse pressure	70 mm.
Males:	
Average age	60
Average systolic blood pressure	175 mm.
Average diastolic blood pressure	108 mm.
Average pulse pressure	67 mm.
Females:	
Average age	53
Average systolic blood pressure	183 mm.
Average diastolic blood pressure	108 mm.
Average pulse pressure	75 mm.

* Read before the Illinois State Medical Society, Springfield, May 19, 1915.

in the urine. To be sure, the absence of albumin in the urine does not necessarily exclude the existence of nephritis, and no claim is made that this entire group of cases is non-nephritic in type, for undoubtedly latent nephritis has existed in many instances. The division is made on purely clinical grounds. The blood pressure, both systolic and diastolic, averages considerably lower in these cases than in those of the group showing albuminuria and this irrespective of age or sex influence. In the nonalbuminuric cases the average pressures are: systolic, 179 mm.; diastolic, 109 mm.; and in the albuminuric cases: systolic, 200; diastolic, 123 mm. The fact that blood pressure readings are higher in cases showing positive evidence of nephritis is in line with practical clinical experience, which I think generally has demonstrated the greater severity and inveteracy of nephritic high blood pressure. An interesting fact in the material submitted is the relative sex contribution to each of these classes. In the group without albuminuria, the preponderating sex is the female (females, 32; males, 27); whereas, in the albuminuric group, the reverse is the case (males, 38; females, 22). This contrast may throw some light on the relatively better progress and more favorable outlook of the nonalbuminuric class of cases.

TABLE 3.—AVERAGE PRESSURES IN SIXTY CASES WITH ALBUMINURIA AND GOOD CARDIAC COMPENSATION

Cases with albuminuria and good cardiac compensation	60
Males	38
Females	22
Average age	53
Average systolic blood pressure	200 mm.
Average diastolic blood pressure	123 mm.
Average pulse pressure	77 mm.
Males:	
Average age	53
Average systolic blood pressure	196
Average diastolic blood pressure	124 mm.
Average pulse pressure	72 mm.
Females:	
Average age	53
Average systolic blood pressure	206 mm.
Average diastolic blood pressure	123 mm.
Average pulse pressure	83 mm.

Twenty-seven cases of nonalbuminuric type that remained under observation for six months or longer displayed an average decline in blood pressure of: systolic, 27 mm.; diastolic, 12 mm.; whereas, twenty-four cases with albuminuria under observation for equal periods showed average declines of: systolic, 21 mm.; diastolic, 8 mm. The relatively good prognosis of nonalbuminuric as contrasted with albuminuric cases seems indicated by the fact that of twenty-one deaths reported in the entire series of 130 cases, but two were cases without albuminuria, as against nineteen with albumin in the urine.

4. When we come to study the albuminuric high pressure cases, we find not only a high average of systolic and diastolic pressure, but also a lack of amenability to control that is characteristic. The morbidity is high, the causes of death being heart failure, uremia and apoplexy, in their order of frequency. The highest average of both systolic and diastolic blood pressure is furnished by those patients dying in uremia, the average of six cases being: systolic, 230; diastolic, 148. Two patients dying of apoplexy gave an average systolic pressure of 230; diastolic, 140. In contrast to this, patients dying of heart failure gave an average systolic pressure of 197; diastolic, 122. These figures furnish some support to the contention of Janeway that mortality in high blood pressure cases cannot be predicated on the height of pressure alone. Heart failure may occur as frequently in the group with blood pressure below 200 mm. as when systolic pressure ranges above that figure. Janeway suggests that a pressure sustained above 200 mm. raises a certain presumption in favor of death by uremia or apoplexy, an assertion which the accompanying observations appear to support. A point bearing on the incidence of cerebral terminations (apoplexy and uremia) would appear to be persistent high elevation of diastolic pressure.

5. Heart failure in hypertension may occur on a falling systolic pressure or on a sustained or even an increasing systolic pressure with the element of peripheral block much in evidence, as indicated by high diastolic readings. Eleven cases of heart failure are included in the accompanying statistics. Four of these cases occurred in patients with comparatively low or falling pressure, the average being: systolic, 180 mm.; diastolic, 111 mm.; pulse pressure, 69 mm. A typical instance of heart failure with falling pressure is that of a man of 60, whose previous pressure range during cardiac compensation had been: systolic, 200 mm.; diastolic, 110 mm. With the advent of edema and orthopnea, pressures fell to: systolic, 140 mm.; diastolic, 100 mm.; subsequent improvement in his condition was accompanied by a rise of both systolic and diastolic pressures to former levels, the dropsy disappearing. High pressure stasis or failure with rising blood pressure characterized seven of the eleven cases observed, the average pressures being: systolic, 221 mm.; diastolic, 136 mm.; pulse pressure, 85 mm. A typical case of this group is that of a woman of 43 who, during the height of her asystole, had pressures of: systolic, 280 mm.; diastolic 170 mm. Recovery of compensation under free purgation and strophanthin altered the blood pressure picture to: systolic, 214 mm.; diastolic, 142 mm.

THE REDUCTION OF HIGH BLOOD PRESSURE

In the compass of this necessarily brief discussion, it will be impossible to more than indicate a few of the general conclusions that the experience of the past ten years has emphasized. Those who have paid particular attention to this phase of circulatory disturbance will recall that the earlier assumptions regarding the significance of high blood pressure were, to say the least, not very definite. The fear engendered by the realization that the upper limit to blood pressure is set by the reserve power of the heart, a factor difficult if not impossible to estimate, and that in consequence cardiac exhaustion or apoplexy was pending in every patient with a sustained high blood pressure, led to ill-advised efforts to reduce the pressure by direct attack. Experimental investigation and the argument of clinical experience combine to convince us that hypertension is part of a mechanism for compensating visceral deficiency, and that rude efforts to reduce blood pressure are unphysiologic, and disturb some status or equilibrium essential to comfort and life. In this item undoubtedly, as in certain other compensatory adjustments, there may be overcompensation; and many patients with excessive pressures would be better off were the blood pressure at a lower average.

The proper means to accomplish this result must undoubtedly be by a careful study of the individual case, and systematic adjustment of the diet and personal hygiene so as to eliminate or minimize those

factors that are contributing to the production or progression of the underlying pathologic condition. A discriminating study of each case on its own merits will often point the way to effective means of relieving cardiovascular wear and tear. The art of history taking, a sadly neglected but most essential item, will, in this class of cases, if properly applied, furnish important points of departure from which to supply precept in personal hygiene of the utmost advantage in treatment.

Without going into detail, it may be said that the most important measure in the management of high blood pressure states is the proper regulation of the personal habits and diet. The gain over excess pressure accomplished by this means is purely net gain, involving no interference with Nature.

It is apt to be otherwise when we attempt to reduce high blood pressure by routine use of drugs. Fortunately, the effect exerted by vascular drugs is evanescent — coterminous with the physiologic action of the drug employed. It soon becomes obvious that the vasodilator cannot be continued indefinitely, and it may be equally apparent that the patient's condition has been in no real sense improved. With the discontinuance of the medication, blood pressure returns to its former height and the experiment is ended.

I am far from believing that vascular drugs are of no value in high blood pressure. They serve a very useful purpose by modifying hypertension in the presence of certain complications, such as angina, apoplexy prodromes, stenocardia and high tension headaches. Even as a routine they may occasionally prove of service, although in no instance should depressor effects be sought by the use of drugs alone. In a number of cases of nonalbuminuric type with pressures ranging high and the spastic element prominent, I have found the use of sodium nitrite administered in moderate doses twice or thrice daily of considerable value in relieving distress. For this type of case I have reason to commend the combination recommended by Lauder Brunton, consisting of sodium nitrite, potassium nitrate and sodium bicarbonate. The employment of iodids in arterial hypertension should receive mention. I cannot speak of their action, for I do not know what that is, or, indeed, that they exert any real therapeutic effect on blood pressure; but I can discuss their employment, for I have used them extensively. They serve the very useful purpose of a routine medicament. They constitute the placebo of high blood pressure. Moreover, they appear to be a placebo that does good in some mysterious way, if long continued in small doses. Their employment meets the very human demand which hypertension patients make for drug treatment, and without which they are rarely satisfied.

To keep up a constant moderate depletion from the bowel has long been a recognized procedure in the treatment of chronic nephritis (Dickinson's "morning purge"). It undoubtedly exerts a beneficial effect on blood pressure. One objection to the routine use of saline laxatives is that occasionally they give rise to colitis. A number of my patients have been seriously inconvenienced in this manner, and latterly I have preferred less irritating measures, such as liquid petrolatum preparations.

Phlebotomy appears to me to be indicated in certain high tension cases. Hypertension crises, uremic waves of excessive pressure, and stenocardia may furnish indications for its employment as a means of reducing pressure quickly. A type of case occasionally seen is hypertension with polycythemia. In such instances the red blood count may rise to 6,000,000 or more per cubic millimeter, and the pressure range be high. I have bled in such cases, and in two examples have repeated it periodically for a time with apparent benefit.

Sweating by hot air or packs is also another direct therapeutic procedure available in certain cases. The means employed, it has seemed to me, are of secondary importance, the diaphoresis being the chief consideration. I do not hesitate to administer pilocarpin in combination with the sweat in cases with good cardiac compensation, and have never seen any harm follow its use.

I shall not dwell on the detail of the dietetic and hygienic management of these cases. These items have received full discussion at many able hands. In outlining the diet therapy of high blood pressure, as much discrimination should be exercised as with any other therapeutic measure. Much greater liberality may be permitted non-nephritic cases than those of obviously nephritic type. It is doubtful, however, whether special forms of diet have ever greatly influenced the progress of events in high blood pressure. Quantity is more important than quality in food selection. Provided renal function is well maintained, there appears no good reason why we should not permit a protein ration based on physiologic needs. The functional capacity of the kidney may be tested out with the phenolsulphonephthalein test. In all my cases of high blood pressure for the past two years, this test has been employed at the beginning of observation for its possible diagnostic assistance, and at intervals while the case remained under observation in order to keep track of renal capacity. It has been asserted by Agnew, Folin and Denis and Seymour that, when the renal response to function testing falls to 40 per cent. or lower, waste nitrogen retention begins in the blood. Accepting this observation as correct, it has been my practice to adopt a comparatively liberal attitude in diet regulation of cases showing a good elimination with the phenolsulphonephthalein test, reserving strict regulation for those cases showing a response of 40 per cent. or lower. So far as I am able to judge, this practice has not yet misled me.

TABLE 4.—AVERAGE PRESSURES IN ELEVEN CASES WITH BROKEN COMPENSATION

Cases with broken compensation	11
Males	9
Females	2
Average age	61
Average systolic blood pressure	206 mm.
Average diastolic blood pressure	127 mm.
Average pulse pressure	79 mm.
Males:	
Average age	52
Average systolic blood pressure	204 mm.
Average diastolic blood pressure	127 mm.
Average pulse pressure	77 mm.
Females:	
Average age	70
Average systolic blood pressure	215 mm.
Average diastolic blood pressure	130 mm.
Average pulse pressure	85 mm.

In the routine observation of high blood pressure, it will be found in the main that, for therapeutic purposes, the cases fall into two groups: those in which cardiac symptoms (dyspnea, angina, cardiac asthma, etc.) predominate, and those in which renal symptoms (polyuria, uremic manifestations, retinal developments,

etc.) mark the case as plainly nephritic in type. The two groups require somewhat different handling. The renal type of case requires much stricter control of diet, greater care for elimination, and vigilant readiness to meet uremia emergencies. Uremia may develop as a steadily deepening chronic intoxication or as a sudden fulminating affair, appearing without warning or possibly precipitated by acute exacerbation of a more or less latent nephritis. Clinical observation alone may fail entirely to warn of the proximity of acute uremic developments. The greatest assistance may be derived from the routine employment of the phenolsulphonephthalein test. What is not apparent clinically may be revealed in the renal function index as secured by this simple test. Used as a periodic means of checking up renal function, it furnishes a basis for security against uremic surprises that cannot be secured in any other way available to the clinician.

When cardiovascular manifestations predominate, our chief concern becomes the preservation of the cardiac reserve. As Landon Brown appropriately puts it, "The patient is living too close to the limits of his cardiac reserve." The effect of persistent overstrain on the cardiac muscle is slow but sure, and, in the end, unless some other lethal termination occurs, we see with a constancy justifying prediction the development of myocardial insufficiency. The ability of the heart muscle to withstand gradually accumulated strain is remarkable, and the inevitable heart failure may be long postponed. Years may elapse, even with a sustained pressure considerably above 200 mm., without serious cardiac mishap. Potentially, from the very outset, every patient with high blood pressure is, however, a cardiac invalid, and actually becomes one if he lives long enough.

TABLE 5.—AVERAGE PRESSURES IN TWENTY-ONE HIGH BLOOD PRESSURE DEATHS

Deaths	21 cases
Heart failure	11 cases
Uremia	6 cases
Cerebral apoplexy	2 cases
Pneumonia	1 case
Suicide	1 case
A. Heart Failure:	
Average systolic pressure	197 mm.
Average diastolic pressure	122 mm.
Average pulse pressure	75 mm.
B. Uremia:	
Average systolic pressure	230 mm.
Average diastolic pressure	148 mm.
Average pulse pressure	82 mm.
C. Cerebral Apoplexy:	
Average systolic pressure	230 mm.
Average diastolic pressure	140 mm.
Average pulse pressure	90 mm.

The most important function of the therapist in high blood pressure is the management of the cardiac phase, and in the later stages when asytole has begun to develop, well-directed medical treatment may afford immense help toward the prolongation of life and efficiency.

Cardiac failure may develop in either of two ways in arterial hypertension, that is, as left ventricular dilatation with falling systolic pressure and diminishing pulse pressure, or as a high pressure stasis with rising systolic pressure and pulse pressure maintained or increased. The former type is characterized by relative mitral insufficiency and broken systemic compensation with edema, the latter by splanchnic stasis, gallop rhythm, meduliary dyspnea, often without edema and without heart murmurs.

High pressure stasis calls for free hydragogue catharsis, perhaps bleeding; the type of left ventricular failure demands neither of these measures. They both require digitalis stimulation. Digitalis in the end becomes the staff on which the high blood pressure invalid must lean. I make the statement advisedly that digitalis is the most useful drug that we possess in high blood pressure of whatsoever origin. The reason for this is that, after we have enforced the maximum of hygienic and dietetic control, we can do no more for cardiorenal hypertension, but must wait until the heart begins to fail; then we may prolong life for months and even years by the judicious use of digitalis and its congeners. The fact that the blood pressure is high need not deter us from using digitalis. It acts just as well and even better with a high pressure than with a falling pressure. Indeed, it will lower a rising pressure and raise a falling pressure, provided cardiac embarrassment is the underlying cause.

My experience would lead me to urge that digitalis be employed early at the very appearance of cardiac incompensation. It is a great mistake to reserve its use until full cardiac failure is in progress. We have to remember that we are dealing with an exhausted degenerated heart muscle, and should go to its rescue before it is placed at too great disadvantage. Digitalis early should be the rule, and once its employment has been begun, it should be continued until thorough compensation has been reestablished. I have felt in certain cases that the cardiac status, even after apparent recovery of compensation, was too insecure to warrant discontinuance of support, and have continued digitalis medication as a routine for months and years with the greatest benefit. When compensation is badly broken and venous engorgement severe, the full therapeutic effect of the digitalis series cannot be secured by oral administration. Under such conditions its employment should be intravenous. Many times I have secured prompt and efficient support in this manner after administration by mouth has failed.

Strophanthin in sterile solution by intravenous administration is a highly efficient preparation in the heart failure of high blood pressure. I can testify from many gratifying experiences to its rare value. As a means of picking up a failing ventricle, I know of no equal of this preparation. If the rules that should safeguard the administration of this extremely powerful and toxic drug are carefully observed, it may be used without risk and often with the greatest benefit. One-half cubic centimeter of 1:1,000 solution of strophanthin injected into the elbow vein at appropriate intervals for several doses will often induce cardiac reaction when other measures fail. After its effects become apparent, digitalis may be substituted and the effect continued. Unfortunately, in many cases the myocardium is so completely exhausted that response to any form of stimulation is impossible; but when any power of reaction remains, this preparation will best elicit it.

30 North Michigan Avenue.

The Purview of Medical Practice.—The purviews of medical practice have extended beyond the mere care of the sick. The state has created new fields of activity in contemplating sanitation and regulations in public health, requiring more and more expert training to satisfy the needs of the newer function.—Isadore Dyer, M.D., *New Orleans Med. and Surg. Jour.*

INFANTILE SCURVY

II. A NEW ASPECT OF THE SYMPTOMATOLOGY, PATHOLOGY AND DIET *

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Infantile scurvy is commonly regarded as a disorder characterized by malnutrition, by typical changes in the structure of the bones, and by hemorrhages in various parts of the body, occurring most frequently in the gums and beneath the periosteum. The descriptions of the pathologic anatomy are remarkable for their singleness of point of view, whether we consult the textbooks on the diseases of children, or special monographs on this subject. In one and all, attention is directed almost solely to the bony lesions, more especially to the alterations in the microscopic appearance of the long bones, which are constant and characteristic of the disease. On further investigation it is found that this circumscribed point of view of the pathology of this disease has been maintained almost constantly since Barlow first placed its pathology on a firm basis over thirty years ago. Barlow[1] also reported an infiltration of the muscles with serum, and "a quantity of blood-stained serum in the pleura" in some of the cases which formed the basis of his first communication. The thoracic and the abdominal organs have consistently been regarded as in no wise involved, and, indeed, whether in older or in more recent descriptions, are almost invariably passed over with scant or no consideration.

As was to be expected, the pathologic anatomy of infantile scurvy has largely dominated the outlines of its symptomatology. In the clinical descriptions we read time and again of anemia and of hemorrhages, the latter appearing most frequently in the gums or beneath the periosteum, or perhaps as petechiae into the skin, or as hematuria. There is naturally some variation from this simple clinical picture; for example, slight edema of the soft parts, and the occasional fracture of the long bones. Such are, however, in general, the objective signs of infantile scurvy, and if we add pain and tenderness, and the general symptoms of malaise, we have a fairly comprehensive picture of the disorder. More recently, the Roentgen ray has added another sign to this category, and once more we find that it is in respect to a lesion of the bones. I refer to the characteristic "white line" of Fraenkel, to be seen frequently at the epiphyseal ends of the long bones in the early stage of this disorder. It is interesting to note that in Fraenkel's monograph,[2] which is devoted to a study of the changes noted by means of the Roentgen ray, there is no mention whatsoever of an examination of the heart or the lungs, and no consideration of their possible involvement in the disease.

In a previous paper[3] on this subject, the alteration in the blood and the blood vessels in infantile scurvy was considered. It was found that the hemorrhages are attributable to a disturbance of the vessel walls rather than to a defect of the factors concerned in the normal coagulation of the blood. The group of infants which formed the basis of the first report had been in the Hebrew Infant Asylum under close observation for many months, and had been fed the usual milk mixtures. The milk given was Grade A pasteurized, which is heated to 145 F. for thirty minutes. The object of the investigation was to ascertain whether milk treated in this way undergoes any essential change, and whether infants could be made to thrive on it even when orange juice was discontinued. It may be remembered that the Commission on Milk Standards, in addition to endorsing pasteurized milk from a bacteriologic standpoint—a position which has justly received general acceptance—states that heating milk to this degree does not impair its nutritive properties. Our experience led us to conclude, on the contrary, that unless some antiscorbutic substance, such as orange juice, was given, a more or less mild form of scurvy developed, which yielded quickly to simple dietetic treatment—changing to raw milk, or once more adding orange juice or the juice of orange peel to the diet. This conclusion has been questioned by some, so that, in view of the importance of the subject and its wide applicability, it seemed highly desirable to pursue the study further and to determine whether signs of scurvy again made their appearance.

Our results, from this point of view, may be summarized by the statement that, in spite of the fact that the milk was of excellent quality, that the infants received food of high caloric value, and that in many instances cereal was also given, mild scorbutic symptoms developed in almost all cases within from two to three months. The purpose of this second paper, however, is not to report these cases in detail, but to present new data noted in the course of this study, which would show not only that infantile scurvy must be regarded as a disorder involving the bones and the blood vessels, but also that there is a considerable variety of other clinical manifestation; furthermore, that this broader symptomatology affords a basis for linking it in its symptomatology and pathology to other "deficiency diseases," for example, beriberi, and finally that this relationship is strengthened by the results obtained with certain dietetic therapy.

In addition to the classical signs of infantile scurvy —the hemorrhages into the gums or beneath the periosteum—a careful examination frequently will reveal involvement of the circulatory system. Most noteworthy of these is *an enlargement of the heart, and more especially the right heart.* This sign can be elicited, when it is fairly marked, by percussion; in several instances we have detected it in this way. In three cases, the signs have been substantiated by means of the Roentgen ray. Roentgenograms of two of these taken by Dr. Charles Gottlieb are reproduced in the accompanying illustrations. The one infant (Fig. 1) was 14 months of age and had been under observation in the institution since he was about 2 months old. He had been on a diet of milk and of cereal, without the addition of orange juice, for about four months. Mild scorbutic symptoms had gradually made their appearance: pallor, stationary weight, peridental hemorrhage, and a few petechiae of the skin and of the conjunctivae. In the course of careful physical examination we were surprised to note the marked increase of cardiac dulness, which extended fully 1½ fingers to the right of the right border of the sternum, and to the left somewhat outside the nipple. The heart sounds were muffled at the apex

* From the Research Laboratory, Department of Health, New York City.

1. Barlow, T.: Medico-Chirurg. Tr., 1883, lxvi, 159.
2. Fraenkel, E.: Fortschr. a. d. Geb. d. Röntgenstrahlen, Supplement 18, 1908.
3. Hess, A. F., and Fish, Mildred: Infantile Scurvy: The Blood, the Blood Vessels and the Diet, Am. Jour. Dis. Child., December, 1914, p. 385.

but clear at the base. The pulse was rapid and regular. Numerous roentgenograms were taken, and all showed approximately the same cardiac enlargement. A fluoroscopic examination was made in order to see whether there was fluid in the pericardial sac, a condition which was once noted postmortem. However, there was no appreciable amount of fluid observed within the pericardium. Figure 2 shows a very similar heart condition.

Definite cardiac enlargement to the right was demonstrated both by clinical and by roentgenographic examination in all three infants. In the majority of cases, however, both percussion and the Roentgen ray showed normal heart outlines. In some of these, the presence of tachycardia would seem to indicate that the circulatory system was not entirely spared. This rapidity of heart action was constant, and in the case of an infant 8 months old was found, on repeated examination, to reach 180 beats or more. In conjunction with this increased frequency of the pulse, an increased respiratory rate was noted.

As I have stated, clinical descriptions omit any mention of involvement of the heart. Barlow states that "there is nothing to note regarding the heart and lungs." Necropsy protocols usually are incomplete and unsatisfactory in this regard; there are some, however, which are significant. In the monograph on this subject by Schoedel and Nauwerck,[4] five careful necropsy protocols are reported. In two instances the hearts were apparently normal. In the others we find the following record, which is passed over without comment:

1. Pericardial fluid somewhat increased, both ventricles moderately dilated, the right somewhat hypertrophic.
2. The heart showed a hypertrophy of the right and left ventricles, as well as dilatation of the right ventricle.
3. The right ventricle is dilated and slightly hypertrophied, the muscles pale and tough.

In this connection the necropsy reports on animals suffering from artificially induced scurvy afford little information. The excellent works of Holst and Froelich[5] on scurvy in guinea-pigs, and that of Hart and Lessing[6] on scurvy in monkeys, do not take any cognizance of the heart. However, the necropsies on infantile scurvy which I have cited suffice to substantiate from a pathologic-anatomic point of view the enlargement of the heart which we determined by means of clinical methods.

As is well known, edema constitutes a not infrequent symptom of infantile scurvy. This manifestation, however, has not been given the prominence which, I believe, it should be accorded. In our experience subcutaneous edema is not only one of the most constant phenomena in the symptomatology and pathology of this disorder, but deserves special consideration because it appears in a peculiar clinical form and frequently is one of the earliest indications of threatening scurvy. As can be well understood from the nature of our investigation, we had a peculiarly favorable opportunity to observe the earliest signs of this disorder. In addition to the somewhat characteristic pallor which has been so often depicted as a warning signal, we noted edema, involving most regularly the eyelids, especially the upper lids. The puffiness was met before any symptoms of hemorrhage could be found, whether bleeding into the gums or red cells in the urine, and persisted when the disorder was disappearing under appropriate dietetic treatment. The edema, however, is far more widespread. Postmortem examinations have clearly demonstrated this fact. Any one who has incised the subcutaneous tissues to reach the long bones must have noted the moist and infiltrated condition of these parts. The reason this pathologic state has played so small a rôle in the symptomatology of infantile scurvy is that the edema differs clinically from that usually encountered; in other words, it does not pit on pressure. This peculiarity is ascribable to the fact that it infiltrates the layers of the integument and the underlying muscle, rather than being diffused in the loose subcutaneous areolar tissue. It is a firm edema, causing some glossiness of the overlying skin, which is rendered difficult to wrinkle or to pinch between the fingers. Indeed, at times one is in doubt whether edema is actually present, until one compares the texture of the tissues with those of a healthy infant of about the same age and weight. This firm edema occurs most frequently over the anterior aspect of the lower end of the leg. The edema, as suggested in the previous paper, is probably due to a nutritional disturbance of the smaller vessels which allows fluid to permeate the walls.

As has been mentioned above, this transudation involves the muscles of the body as well as the subcutaneous tissue. Barlow described an "infiltration of the intercostal muscles." It is probable that when edematous fluid is poured out into the muscles of the thigh, the swelling is not infrequently wrongly diagnosed as due to subperiosteal hemorrhage. This has been our experience. I reproduce (Fig. 3) an instance in which this error occurred. It will be noted that in spite of the manifestly increased diameter of the affected thigh, there is no augmentation in the width of the bone and no typical elevation of the periosteum as is to be seen when hemorrhage has occurred, but that the difference is due solely to an infiltration of the muscular layer.

The consideration of subperiosteal hemorrhage which, as is well known, is accompanied by exquisite pain and tenderness, raised the question as to whether we are correct in ascribing all pain in the extremities to such involvement. It is difficult to answer, as the interpretation of pain in an infant is an unsatisfactory clinical task. It seemed to us after careful study, however, as if in some instances there was a tenderness of the skin or of the muscles, quite dissociated from that of the bones, which might be attributable to an involvement of the nerves. Further investigation was suggestive, although not conclusive, of involvement of the nervous system. The knee reflexes in almost all instances were markedly increased; in one case they were almost absent on repeated examination. Tests of the reaction of the nerves (median) to galvanism were not definite. An examination of the retinas, for which I wish to thank Dr. Julius Wolff and Dr. Barnert, showed edema around the disks in the two cases which were furthest advanced. As far as I can ascertain, no ophthalmoscopic examinations have been made in infantile scurvy, but it will be interesting to learn what retinal examinations in other cases will show. In this connection I may add that it is quite possible that the

4. Schoedel, L., and Nauwerck, C.: Untersuchungen über die Siceller-Barlow'sche Krankheit, Jena, 1900.
5. Holst, A., and Froelich, T.: Ztschr. f. Hyg. u. Infektionskrankh., 1912, lxxii, 1.
6. Hart, C., and Lessing, O.: Der Skorbut der kleinen Kinder, Stuttgart, 1913.

pathogenesis of the cardiac enlargement is an involvement of the vagus. It is difficult to understand the predisposition of the right heart to enlarge unless we associate this with a disturbance of the circulation in the lungs. The frequent occurrence of pneumonia in the course of scurvy adds weight to this view.

The syndrome which I have sketched brings infantile scurvy into actual relationship with some of the

Fig. 1.—Infant (14 months old); mild scurvy. **Heart enlarged greatly to the right.**

other "deficiency diseases," and more particularly with beriberi. These two diseases are commonly grouped together, merely because they have one factor in common—they can be cured by the addition of a definite food to the diet. As beriberi frequently attacks infants, it is possible to go further and to compare these two diseases in patients of this tender age. We are indebted to Andrews[7] for a comprehensive clinical and pathologic account of the beriberi which is commonly encountered in the Philippines among infants who are nursed by mothers suffering from this ailment. It differs but little from the beriberi in adults described so completely by Vedder.[8] Hemorrhages occur, but are by no means constant. Cardiac dulness is increased, especially to the right, and the heart sounds are muffled. The pulse is rapid, from 130 to 170 or more, and dyspnea is almost always present. At necropsy, hypertrophy of the heart is found; "the wall of the right ventricle equals or exceeds that of the left." Edema is common, the skin having "a tough, leathery feel," and postmortem examination shows that "the subcutaneous fat is present apparently in good amount, grayish white, and very moist;" in many cases a general edematous condition is present. Examination by means of the electric current was unsatisfactory; however, a degeneration of the nerves (vagus, phrenic, intercostal, anterior tibial) was established, although this was "not as extensive as is found in cases of adult beriberi."

We can hardly review this summary of "infantile beriberi" without being struck by the similarity between this disorder and infantile scurvy as I have sketched it. There are some factors which are evidently dissimilar, but the differences are not such as to obscure the evident clinical and pathologic relationship between them. They show, nevertheless, that we are not dealing with one and the same disease, for it is clear that the characteristic symptom of infantile scurvy is hemorrhage, whereas that of beriberi is nerve degeneration. It is also evident that the edema is much more marked in the latter disorder. It must be borne in mind, however, that in adult beriberi there is a dry as well as a wet form, and also that exceptionally, infantile scurvy leads to the appearance of general edema. I myself have seen an instance of this kind, and others have been reported from time to time. One of the very first cases described in this country (Northrup[9]) showed edema not only of the feet and legs, but also of the scrotum. It should be investigated whether this peculiarity is to be ascribed to the idiosyncrasy of the patient or to the constituents of the diet.

Thus we see that the relationship between infantile scurvy and beriberi, which has rested on the basis of analogy, has also the foundation of symptomatology and pathology. Numerous interesting observations would seem to have rendered probable such intimate kinship. Holst and Froelich[5] noted that guinea-pigs fed on decorticated or highly milled rice developed scurvy and not beriberi; and these authors, as well as Ingier,[10] demonstrated a degeneration of the nerves in some of the animals. In man, Darling[11] reports that "in some African negroes a diet that causes scurvy in one set of men causes neuritis in others." He also showed that in adult scurvy there may be found "right sided hypertrophy and degenerative changes in the vagus and all its branches."[12] The data which I have reported serve to link some of these observations together.

Fig. 2.—Infant (14 months old); mild scurvy. **Heart enlarged greatly to the right.**

It is evident that infantile scurvy, adult scurvy and beriberi have many factors in common, viewed from

7. Andrews, V. L.: Philippine Jour. Sc., April, 1912, p. 67.
8. Vedder, E. B.: Beriberi, New York, 1913.
9. Northrup, W. P.: Arch. Pediat., January, 1892, p. 1.
10. Ingier, A.: Frankfurt. Zischr. f. Path., 1913, xiv, 1.
11. Darling, S. T.: The Pathologic Affinities of Beriberi and Scurvy, THE JOURNAL A. M. A., Oct. 10, 1914, p. 1290.
12. In these cases the knee reflexes were increased as in our cases of infantile scurvy. These reflexes were likewise exaggerated in a group of about twenty-five men suffering from beriberi, whom I have examined recently at the government quarantine station, with the kind permission of Dr. Teague.

a symptomatic as well as from a pathologic standpoint. A test which I was able to carry out led to the conclusion that the scope of comparison may be enlarged to include the dietetic or therapeutic point of view. Although this aspect of the subject will be reported in detail in a consideration of the relation of infantile scurvy to growth, a few words concerning our results seem pertinent and of interest in this connection. It will be remembered that almost all the infants who developed scurvy were receiving cereal (farina) as well as milk. This farina is the starchy kernel of the wheat, from which the outer layers have been removed. It has been repeatedly shown that beriberi is brought about by a diet of polished rice which has been deprived of its outer layer or pericarp. It has likewise been established that the addition of rice polishings to the food suffices to effect a rapid cure of beriberi in man, or of its counterpart, polyneuritis in chickens. In view of these facts and the clinical similarity between infantile scurvy and beriberi, we decided to substitute in place of the farina a cereal containing the outer layer of the wheat. To this end we obtained middlings, the middle layer of the wheat grain, which may be compared to the pericarp of the rice. A cereal was prepared consisting of two parts of middlings and one part of flour, and was given in place of the farina and in the same amounts. The caloric value of this food is the same as that of farina, and it was taken quite as readily, by most of the babies. No other change whatsoever was made in the diet. In some instances, improvement was immediate and striking; there was a gain in weight for the first time in many weeks, a brightening in the appearance and in the disposition of the infants, and a recession of the typical scorbutic symptoms. This improvement was maintained for some weeks. The effect, however, could not be compared to the miraculous change brought about when orange juice or the juice of orange peel was given. The addition of middlings, which may be designated wheat pericarp, was not able to restore the infants to their natural vigor, even when it was given daily for a month or more. In some instances, especially when only a small amount of middlings was taken, no effect was observed. Judging from these experiences, it would seem as if this layer of the wheat grain possesses a small amount of the essential antiscorbutic substance, the vitamins of Funk,[13] but an insufficient quantity to reestablish an adequate positive balance of the material. That the beneficial effect is certainly not attributable to its high fat content is evident when we reflect that the addition of cod liver oil to the diet failed to bring about the least improvement in our previous study. The future must show whether infants fed on a cereal of this character develop scurvy, even though orange juice is not added to the diet.

Fig. 3.—Scurvy with swelling of lower end of right thigh, due to infiltration of muscular layer, not to subperiosteal hemorrhage. Arrows indicate small hemorrhage at end of femur.

CONCLUSIONS

The pathology of infantile scurvy, including Barlow's classical account, is almost entirely devoted to a description of the lesion of the bones; little or no mention is made of the heart, the lungs and other internal organs. On the clinical side, attention has been focused on the evidence of hemorrhage—in the gums, beneath the periosteum, in the urine, etc. In the foregoing paper I have approached the subject from a different point of view and attempted to show that both the pathology and the symptomatology have a broader scope and that the heart is not infrequently involved. In several instances, definite cardiac enlargement was ascertained by means of physical signs and Roentgen examination. Necropsies also show that the heart in some cases is hypertrophied and dilated. The examinations made during life, as well as those carried out after death, demonstrated that this enlargement was mainly of the right ventricle.

Another symptom which should be accorded greater significance is edema, which is almost always present to some degree. This occurs early in the course of the disease and involves most frequently the eyelids. It is often manifested as a firm edema over the lower end of the tibia, infiltrating the skin, and is readily overlooked, as it does not pit on pressure. This extravasation, which is due to nutritional disturbance of the smaller vessels, may also infiltrate the muscles. When this occurs in the thigh and causes swelling, it may be mistaken for the typical subperiosteal hemorrhage.

It would also seem probable that the nerves are involved in infantile scurvy. The knee jerks are increased, and there are indications of superficial tenderness of the limbs and neuro-edema of the optic disks.

In the light of this symptomatology and pathology, infantile scurvy assumes actual relationship to beriberi, in which the right heart is also hypertrophied and the nerves invariably involved. This correlation was emphasized still further by a dietetic test modeled after the treatment of beriberi, which, as is well known, is brought about by a diet of polished rice which has been deprived of its pericarp, and is cured by the addition of rice polishings to the diet. In our study, the addition of middlings—the pericarp of the wheat—caused in many instances a prompt amelioration of the symptoms, although it did not suffice to cure the disorder. This indicates the advantage of giving a cereal which contains the outer layers of the grain when the diet includes no other antiscorbutic food.

13. Funk, C.: Die Vitamine, Wiesbaden, 1914.

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FURTHER OBSERVATIONS ON THE FATE OF FREE BONE TRANSPLANTS

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As to the question of permanency of a free graft, there has been considerable confusion. Our conception of permanency is that it should remain as long as the life of the host into which it is transplanted. Consequently, eight months is entirely too short a time to judge of the permanency of a free graft. To be of clinical value, it would almost always be necessary for it to live as long as its host. Davis and Hunnicutt's experiments,[1] recently reported, are quite in consonance with ours and those of Haas[2] and others, that free transplants into the tissues, with or without periosteum, will ultimately be absorbed. They will often make an abortive effort at reproduction for a short time, as shown by those reported by Macewen,[3] most of which were allowed to run only about six weeks.

Fig. 1 (Experiment 1).—One-half of rib, 1½ inches long, without periosteum, planted into thigh muscles, original size.

So far as our experiments are concerned, as shown in our preliminary report, and later on in this article, we have been unable to say that the free transplants are absorbed any more quickly without the periosteum than with it. Just why McWilliams and Albee lay such stress on the periosteum securing blood supply to the graft we do not know, as it is certain that living bone in no way depends on the blood supply received from the periosteum, and, in fact, the vascular connection of the periosteum is very slight. However, McWilliams' experiments, as well as those of others, indicate that the periosteum in free transplants is a protection against absorption, the periosteal-covered transplant probably surviving somewhat longer, and in turn acting as a protection to the clinical transplant from absorption, while circulation is being established from the ends of the living bone. Phemister[4] showed in his experiments that transplants without periosteum in contact at each end with living bone were more inclined to absorption from the surface at the center of the transplant than those that were protected with periosteum, this probably not due to the periosteum reestablishing circulation earlier, but simply protecting the graft from absorption while the circulation was being established from its proper sources, the ends of the living bone.

It is also the opinion of Macewen[5] that the periosteum on a transplant prevented the early reestablishment of the blood supply. Haas[2] believes that "the periosteum protects new-formed bone, and directs its growth." Axhausen[6] thinks that "there is greater probability of the graft living if the periosteum is left on." Lewis[7] states that "cortical bone free of its periosteum, endosteum and marrow may retain its vitality and proliferative powers, when subdivided into small fragments, and replaced in the tissues"; also that "contact with living bone is unnecessary for the growth of these fragments." However, Lewis' experiments were all done on young dogs; many fragments were put back in the cavity line of the original shaft, and were all in contact with one another.

As stated before, experiments seem to indicate that this is quite different from transplanting fragments individually free into the tissues distant from the site where the bone originally belonged, as shown in our Experiments 6, 7, 8, 9, 10, 24 and 25 of our preliminary report,[8] and those to follow in this article. Lewis also showed that fascia covering in a gap in bone "takes up the nutritional and limiting function of the periosteum." We would also be inclined to add to this statement the protecting function of the periosteum, which we consider the most important of all its functions in bone grafting, both to the individual graft and to the protection of the process of union to the living bone, preventing the ingrowth of fibrous tissue, through which the osteoblasts cannot penetrate.

Fig. 2 (Experiment 1).—Seven months and fourteen days after transplantation of half of rib, 1½ inches long, into thigh muscles, nearly absorbed.

While McWilliams[9] and Albee[10] are quite positive that the periosteum on free grafts is an important factor in the reestablishment of circulation and nutrition to the graft, Phemister[4] states that "in free transplants without periosteum, nutrition was more accessible to the bone cells; that free transplants, with periosteum and endosteum, the periosteum remained quite generally inactive."

If establishment of circulation is the all-important factor making for permanency, and the periosteum is the medium through which this occurs, the spine of the scapula should be

1. Davis and Hunnicutt: Bull. Johns Hopkins Hosp., March, 1915.
2. Haas, S. L.: Surg., Gynec. and Obst., 1913, xvii, 164.
3. Macewen: Growth of Bone, Glasgow, University Press.
4. Phemister, D. B.: Surg., Gynec. and Obst., 1914, xix, 303.
5. Macewen: Personally expressed to the authors.
6. Axhausen: Arch. f. klin. Chir., 1911, xciv, 241.
7. Lewis, E. J.: Surg., Gynec. and Obst., 1914, xviii, 572.
8. Brown, W. L., and Brown, C. P.: Surg., Gynec. and Obst., 1913, xvii, 681.
9. McWilliams, C. A.: The Periosteum in Bone Transplantations, THE JOURNAL A. M. A., Jan. 31, 1914, p. 346; Ann. Surg., 1912, lvi, 377; ibid., 1914, lix, 465; Surg., Gynec. and Obst., 1914, xviii, 159.
10. Albee, F. H.: Surg., Gynec. and Obst., 1914, xviii, 699.

the ideal periosteum-covered transplant; but reference to Experiments 7, 8, 9 and 10 of our preliminary report shows that these were uniformly absorbed.

The following experiments in addition to those cited above indicate the general tendency to absorption of free grafts:

PROTOCOLS OF EXPERIMENTS

Experiment 1 (New No. 4).—Dog, 3 months old, weight 20 pounds; one half of the rib, 1½ inches long without periosteum, was planted into the muscles of the thigh. Figures 1 and 2 show the specimen at the time, and seven months and fourteen days later, probably not more than one-fifth its original circumference, being gradually absorbed.

Experiment 2 (H X).—Dog of unknown age, but old, weight 16 pounds; 1½ inches of ulna were resected with periosteum, then split into five pieces, the periosteum removed, one piece laid in the omentum and held in place by 00 plain gut; and another placed between the sheath of the right rectus and the internal oblique. Sixty-three days later, no signs of either transplant were revealed by roentgenoscopy. Dog was killed five months and six days from time of operation; no trace could be found of either transplant. The peritoneal cavity was thoroughly searched, but no evidence of the transplant could be found. One inch of the space in the ulna had been filled by new bone growing out from the proximal fragment, with fibrous union between this and distal fragments. In this case there had been reproduced 1 inch of new bone, after the entire periosteum had been removed.

Fig. 3 (Experiment 4).—Forty-seven days after planting piece of scapular spine 1¼ inches long and three-fourths inch wide at widest end, periosteum intact, into muscles of loin. Rapid absorption.

Fig. 4 (Experiment 3).—Half of ulna, with periosteum and endosteum, planted into muscles of left thigh.

Experiment 3 (Old No. 10). — Dog 4 months old, weight 15 pounds. The spine of the scapula was removed with bone-cutting forceps, after muscles were detached, leaving the periosteum intact. A fragment measuring 2 inches long, 1 inch wide at the wide end and one-sixteenth inch at the narrow end was planted into the muscles of the loin. Seventy-eight days later, it was less than half its original dimensions, ragged, with sharp edges, and thin as writing paper. There was every evidence of rapid absorption.

Experiment 4 (Old No. 9).—Dog 4 months old, weight 15 pounds. The left spine of the scapula was removed with bone-cutting forceps, the periosteum being left completely intact, and planted into the muscles of the loin. The fragment was 1¼ inches long by three-fourths inch wide at the widest point. The result forty-seven days later is shown in Figure 3; it was half its original size, almost as thin as paper, and was being rapidly absorbed.

These two experiments are only illustrative of a considerable number recorded in our preliminary report referred to above. We have found the spine of the scapula, completely covered with periosteum, completely absorbed in as short a time as thirty-nine days.

Experiment 5 (New No. 5).—Dog 4 months old, weight 26 pounds; 1½ inches of the right ulna were cut out with all the periosteum; split, one half with periosteum attached, was planted into the muscles of the right thigh, and one half, with periosteum removed, into the muscles of the left thigh. The specimen with periosteum is shown at the time of transplantation in Figure 4, and four months and sixteen days later in Figure 5 showing absorption. The specimen with periosteum was also being rapidly absorbed, apparently no faster than the other, relatively speaking, as it was originally larger.

Experiment 6 (New No. 1).—Dog 5 years old, weight 24 pounds. Piece of rib 1 inch long, periosteum intact, split in half, leaving the periosteum on one side and cancellous bone on the other. One piece planted into the muscles of each thigh. Eight months and one day later, the piece of bone in the right thigh measured three-fourths inch long and one-fourth its original diameter, smooth all over and no evidence of regeneration. The piece in the left thigh was three-eighths inch long, one edge slightly ragged and sharp, no signs of regeneration, but only one-fourth its original size. The results of one of these transplants is shown in Figure 6.

Fig. 5 (Experiment 5).—Four months and sixteen days after transplant, with periosteum; rapidly absorbing.

Bearing further on the question of the reproductive power of the bone and protective function of the periosteum, we report the following experiments in addition to those in our preliminary report:

Experiment 7 (L X). — Dog 4 months old, weight 12 pounds. The right ulna was bared, and 1 inch resected subperiosteally, each end of the bone capped with four-ply tinfoil, tied in place with 00 catgut; the same experiment was made on the opposite side, except that there were no caps over the ends of the bones. Figure 7 shows the results three months afterward. The ulna in the left side where no caps were used is completely restored, rather larger in diameter than before. The result in the right side where caps were used shows the gap filled in with a small extension of bone from proximal end growing out from the old

bone, just above the cap on the back side, where the cap did not extend high, running down in a periosteal trough to the distal end, there forming a false joint. From the distal fragment of the ulna is also a new growth of bone, not shown in the roentgenogram, extending out almost to the radius; in other words, a spur thrown out from just above the cap. It is very evident in this experiment that the bone grew from the original bones, as can be plainly seen; also, if the periosteum had filled in the gap in the opposite side, it should have done so in this side likewise.

Fig. 6 (Experiment 6).—Eight months and one day after planting one-half rib 1 inch long with periosteum and endosteum intact, into muscles of left thigh. Greatly reduced in size.

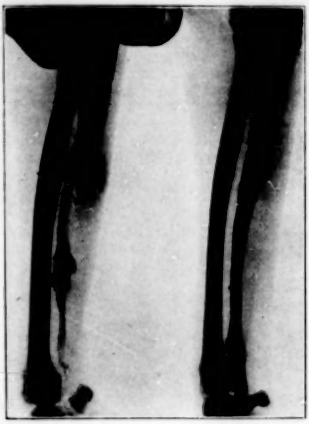

Fig. 7 (Experiment 7).—Subperiosteal resection of 1 inch of each ulna, right capped, left not. Left completely restored.

That periosteum removed from the rib or a bone of like anatomic structure where muscle attachments are present will occasionally produce bone, is shown in the following:

EXPERIMENT 8 (New No. 4).—Dog 3 months old. Periosteum removed from the rib, measuring three-fourths by one-half inch, was planted into the right side of the abdominal wall, spread smoothly on internal oblique muscle, and sutured at the four corners with 00 plain catgut. Seven months and fourteen days later, there was a small quadrangular spicule of bone. As the dog was killed at this time, it is impossible to say whether this spicule was absorbing or growing. This is the only instance in which we have ever been able to produce bone from free periosteal transplant, and we are inclined to believe that we carried osteoblasts with it on account of the muscle attachments at each edge, as at the linea aspera.

That ribs will be reproduced also from this upper and lower line of osteoblasts protected by the periosteum is shown in the following:

EXPERIMENT 9 (New No. 3).—Dog 4 months old, weight 13 pounds. The right ninth rib was subperiosteally resected from the cartilage to the spinal junction; there was difficulty in getting it unjointed at the back. The periosteum was easily removed and well defined, except that there was some difficulty at the lower border of the rib, some scraping being required to get it loose. Two months later, the seventh rib on the same side was removed subperiosteally; 2½ inches of the sixth rib were also removed subperiosteally. The periosteum in all cases was closed with 00 plain gut. One year after the original experiment, the ninth rib had been almost entirely reproduced (Fig. 8). The seventh, which had been ten months, was to a great extent reproduced, and the 2½-inch gap in the sixth rib, which also had been ten months, had nearly grown in from each end. These new-formed ribs were very thin, broad and irregular in outline. It seems quite evident in the sixth that the reproduction has been almost entirely from the cut ends of the ribs; the seventh shows by its irregular outline areas in which bone has not been as rapidly reproduced as in other places. The circular area toward the front end of this rib, showing absence of bone, in the roentgenogram, has a thin bridge of bone straight along where the edge of the rib should be, which shows in the prepared specimen and does not in the roentgenogram, rather indicating that the bone was filled in from the part of the periosteum originally on the upper border of the rib.

That rib, and also other bones will reproduce without periosteum, until they are prevented from further growth by ingrowing of fibrous tissue in their path, is shown in Figure 9, and also in our preliminary report, Nos. 20 and 26.

EXPERIMENT 10.—Figure 9 shows the results in Experiment 1, in which 1½ inches of the rib were resected with all the periosteum. Ingrowth of fibrous tissue evidently stopped further growth of the bone after the gap had been reduced to three-fourths inch. We believe that if this had been prevented by the presence of a periosteal trough, this gap would have been completely filled.

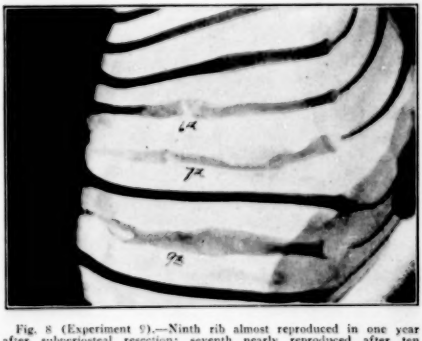

Fig. 8 (Experiment 9).—Ninth rib almost reproduced in one year after subperiosteal resection; seventh nearly reproduced after ten months; 2½ inches of the sixth rib nearly reproduced after ten months.

CONCLUSIONS

1. All of our free transplants, either with or without periosteum, into the muscle, subcutaneous tissue or omentum, were uniformly absorbed if sufficient time were allowed. This occurred regardless of the size

or age of the transplant, the sizes ranging from one-fourth grain to an entire ulna. All of our scapular spines completely covered with periosteum were invariably absorbed.

2. A review of the earlier clinical cases of McWilliams, reported to disprove Murphy's theory[11] that transplants in contact with living osteogenetic bone always become united, indicates that the operations were performed by faulty technic as compared with our present standards. The same also applies to his experiments cited under the same head. They did not have sufficient contact and immobilization to secure primary union.

3. In our experiments with free transplants, those covered with periosteum seemed to be absorbed about as rapidly as those without, though experiments of McWilliams, Phemister, and Davis and Hunnicutt indicate that the periosteum is a protection from absorption to both free grafts and contact grafts.

4. The periosteum is evidently a protection to the process of regeneration and union between the graft and parent bone, preventing the ingrowth of fibrous tissue, exactly as a nerve sheath is a protection to the reparative process in peripheral nerves.

5. From a study of our own experiments and those of others, we do not believe that the same interpretation should be placed on the behavior of the single free transplant, and multiple transplants in contact with one another. The latter seem to have an influence on the life and reproductive capacity of the grafts.

6. We do not believe it has been proved that the periosteum is an important factor in the restoration of circulation in the graft. On the other hand, the indications are that it is a protection to the free graft from the circulation and absorption, and performs the same function for the contact graft, while circulation is being established from the living bone, its regular source of blood supply. As the periosteum has slight vascular connection with the bone, it is hard to understand how it assumes this particular function in the transplant.

7. We do not believe that a free transplant should be considered as permanent except after several years, or that it lives as long as its host. Otherwise, it would be of no clinical value.

Fig. 9 (Experiment 10).—Gap where 1½ inches of rib with all the periosteum had been removed seven months and fourteen days before. One half of gap filled, principally from distal end of rib. Balance of gap filled with dense fibrous tissue. Periosteal trough would have prevented the latter.

11. Murphy, J. B.: Contribution to the Surgery of Bones, Joints and Tendons, The Journal A. M. A., April 6, 1912, p. 989.

Toronto's Fight for Health.—Toronto for the past five years has been fighting typhoid fever with milk campaigns, clean water, clean homes, minus flies, clean back yards, clean streets and clean stables. The typhoid deaths per 100,000 per annum have been as follows: 1910, 40.8; 1911, 20.0; 1912, 12.1; 1913, 10.4; 1914, 7.5; 1915 to date, 1.0. The general death rate per 1,000 has been: 1910, 14.0; 1911, 13.4; 1912, 12.8; 1913, 12.9; 1914, 11.2; 1915, 11.3.

OBSERVATIONS ON THE INTRACUTANEOUS REACTION OF SCHICK IN 455 INFANTS AND CHILDREN *

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NEW YORK

During the past year and a half, a great deal of interest has been aroused in an intracutaneous reaction to detect immunity against diphtheria. This method was devised to differentiate those cases which have antitoxin circulating in the blood or a natural immunity from those which have no antitoxin and therefore no immunity against diphtheria. In this country Park and Smith, and von Behring abroad, have suggested the immunization of patients by means of a toxin and antitoxin mixture.

As is well known, the immunity produced in our own bodies is of much longer duration than artificial immunity produced by the injection of horse antitoxin. Immunity conferred by injection of ordinary horse antitoxin is of comparatively short duration. We have found in our study and observation that it lasts only a few weeks, and this conforms to the observation of other investigators in this field of medical research.

In order to estimate the degree of immunity which follows the injection of toxin and antitoxin, it is necessary to determine the amount of antitoxin per cubic centimeter of serum in units. The usual method of investigation is that followed by Römer. This method is complicated and, for ordinary routine hospital examination, unsatisfactory. To overcome this Schick[1] proposed the intracutaneous injection of one fiftieth of the minimal lethal dose for a guinea-pig weighing up to 300 gm., and observed that he obtained at the site of injection a characteristic reaction which has become known as the Schick reaction. He used as a basis for his observations the work of von Behring, who observed that as little as one-thirtieth of a unit of antitoxin per cubic centimeter of serum will protect a person against diphtheria. If one thirtieth of a unit or more antitoxin per cubic centimeter of serum is present, there will be no reaction at the site of injection; but if there is less than one thirtieth of a unit of antitoxin per cubic centimeter of serum, there will be a marked reaction within from thirty-six to forty-eight hours, which is characterized by redness, swelling, itching and slight

* From the Metropolitan Hospital
1. Schick: München. med. Wchnschr., 1913, lx, 2608.

infiltration. This is a positive reaction, and means that the person injected has not sufficient antitoxin to neutralize the toxin injected, while if it is negative, it indicates that there is circulating in the blood sufficient antitoxin to neutralize the toxin injected. The unneutralized toxin is the thing which produces the local reaction.

This observation is of great moment when we consider that there are a large number of individuals

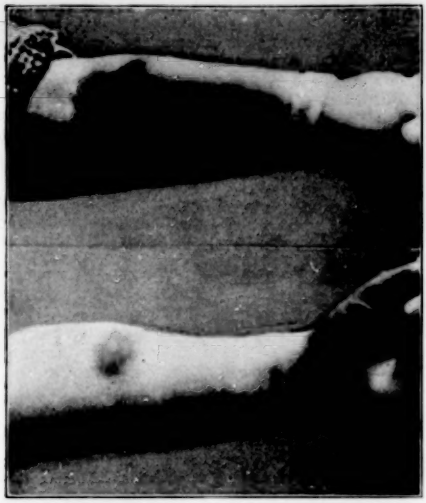

Fig. 1.—Reaction after forty-eight hours, with the characteristic white appearance in the center.

who have a natural immunity and who would give a negative Schick reaction and therefore do not require antitoxin if exposed to this infection. From a financial standpoint, in large communities this is very important, as our observations on this subject will show. Studies on this subject have been made by Park and Zingher,[2] Kolmer,[3] Graef,[4] Weaver[5] and others.[6]

From May 15 until June 15 there came under our observation at the Metropolitan Hospital, New York, 455 infants and children up to 14 years of age. These studies were carried on during this time on these children. The Children's Department at the Metropolitan Hospital consists of a building of 350 beds, given over entirely to the care of infants and children so that the reader will see that of necessity many of the children were in the hospital during this entire period of study. This fact has been a help to us in a careful investigation of this subject, the object of which was (1) to determine whether or not the Schick reaction was of as much benefit as had been reported, (2) to test the efficiency of an antitoxin in immunized patients, (3) to determine the length of time in which this immunization lasted, (4) to aid in the differentiation between throats that were clinically diphtheritic and ordinary cases of tonsillitis, and (5) to determine if the immunity or nonimmunity existed throughout a family. This we were able to observe fifteen times, which will be spoken of later.

The toxin which we used for this study was obtained from Dr. Abraham Zingher of the Research Laboratory of the New York Department of Health. The original diphtheritic toxin was diluted in this way: 0.6 c.c. (minimum lethal dose) of toxin in 9.4 c.c. in 0.5 per cent. phenol solution; and of this primary dilution 1 c.c. was diluted in 99 c.c. of normal saline solution. Of this secondary solution, 0.2 c.c. was injected intracutaneously with a record syringe and a No. 26 platinum iridium needle or a No. 3 steel needle made by Burroughs Wellcome & Co., London.

The usual site of injection was over the forearm after the arm had been cleaned with alcohol. Two-tenths c.c. of a secondary solution of toxin, when injected intracutaneously, produces a small whitish area in the skin. This is absolutely necessary to obtain a proper reaction. The reaction begins to appear within twenty-four hours, and by thirty-six to forty-eight hours the area of injection is of a grayish-red color with considerable induration of the skin and with a slight amount of pain. Our observation leads us to believe that the amount of reaction is rarely less than the size of a 10 cent piece, and if we had a smaller area without infiltration and induration we would consider the reaction negative. After a week the color begins to disappear, and as it does there will be seen a small whitish center to the area of injection which is followed by a slight brownish discoloration of the skin a week or ten days later. With this brown discoloration there is desquamation of the skin.

Fig. 2.—Reaction after two weeks, with a fading redness, but still characteristic white center.

This test was applied in a large number of cases to children suffering from the usual diseases which occur in a large hospital service, and the results of the reaction are given in the accompanying table.

The practical advantage of such a test as the Schick reaction will readily be seen when we cite a case that came under our observation during this period of study. One of our patients had given a positive Schick reaction and five days later developed a membrane on the tonsil and pharynx which was clinically

2. Park, W. H.; Zingher, Abraham, and Serota, H. M.: The Schick Reaction and Its Practical Application, Arch. Pediat., July, 1914.
3. Kolmer, John A., and Moshage, Emily L.: The Schick Toxin Reaction for Immunity in Diphtheria, Am. Jour. Dis. Child., March, 1915, p. 189.
4. Graef, Charles, and Ginsberg, George: Some Observations of the Schick Test, THE JOURNAL A. M. A., April 10, 1915, p. 1205.
5. Weaver, George H., and Maher, Loretta K.: The Diagnostic Value of Intracutaneous Injection of Diphtheria Toxin (Schick Reaction), Jour. Infect. Dis., March, 1915, p. 342.
6. Birnberg, T. L.: The Schick Reaction and Its Practical Application, St. Paul Med. Jour., 1915, xvii, 204. Bundesen, H. N.: Schick Reaction, THE JOURNAL A. M. A., April 10, 1915, p. 1203. Veeder, B. S.: Active Immunization Against Diphtheria by Means of von Behring's Vaccine, and the Diphtheria Toxin Skin Reaction, Am. Jour. Dis. Child., August, 1914, p. 154

diphtheritic. The Schick reaction had been positive; and without waiting for a positive culture, which takes about sixteen hours, we injected antitoxin at once, taking, of course, the usual culture. The next day the laboratory reported a diphtheroid organism from the throat. The child had already had its antitoxin and was beginning to recover from the diphtheria. If we had had to wait for the report of our culture we would have delayed the time of treatment at least

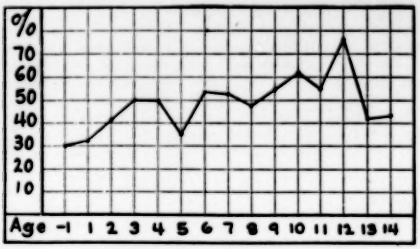

Fig. 3.—Percentages of positive reaction.

sixteen hours, which we believe to be detrimental. Two other children, who had given a negative Schick reaction, developed throats which clinically were diphtheritic, but because of the negative Schick, we did not inject with antitoxin. The regular routine throat culture showed a streptococcus organism, but not the Klebs-Loeffler. Thus, we are able to save considerably in the amount of antitoxin used during an epidemic. All cases giving a negative Schick reaction are not injected with antitoxin.

An interesting observation was made in families in which there were several children in the hospital. If one of the children of a family gave a negative Schick reaction, all of the children in the same family gave negative results. The same thing applied to those families in which one of the children gave a positive reaction, all the others in the same family giving a positive reaction.

We would urge that the Schick reaction, which is not in the form of treatment, but is purely of diagnostic value, be used more extensively in all large cities by the hospital and school physicians, and a permanent record kept in the hospital or in the school, or by the mother, of the nature of the Schick reaction in her child. This would undoubtedly aid a great deal in lessening the rather high mortality which occurs each year in the reporting zone due to diphtheria. If such a reaction was known to exist, the children would be known to be more susceptible and would be injected earlier with the necessary antitoxin, and, we believe, aid the public and the physicians a great deal.

RESULTS OF REACTIONS

Age in Years	Total Tested	Positive	Negative	Per Cent. Positive
Under 1 yr.	20	6	14	30
1	27	9	18	33.3
2	54	23	31	42.6
3	47	24	23	51
4	44	22	22	50
5	28	10	18	35.7
6	42	23	19	54.7
7	41	22	19	53.6
8	25	12	13	48
9	29	16	13	55.1
10	21	13	8	61.9
11	18	10	8	55.5
12	17	13	4	76.4
13	12	5	7	41.6
14	30	13	17	43.3
Total	455	221	234	48.5

Sex	Positive	Negative	Per Cent. Positive
Males	94	105	47.2
Females	127	129	49.6
Total	221	234	48.5

CONCLUSIONS

Our conclusions from this study of 455 cases are as follows:

1. The Schick reaction differentiates doubtful membranes of the throat.
2. It tests the efficiency of antitoxin immunization power.
3. It is of great value in institutional epidemics, in which it lessens the amount of antitoxin used one half, as will be seen by the foregoing figures.
4. It differentiates susceptible from nonsusceptible cases.
5. It shows a striking similarity in reaction in families, and indicates that immunity is a family condition, as shown by fifteen instances under our observation.
6. It lessens the great yearly expenditure for unnecessary antitoxin.

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MYOSITIS OSSIFICANS TRAUMATICA *

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The formation of bony tissue within muscle after a single injury cannot be regarded as a recent discovery, nor is it as rare a condition as some may

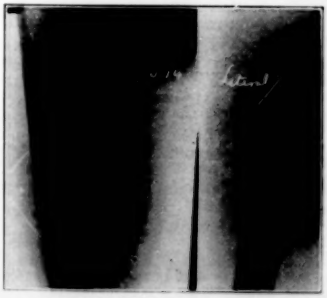

Fig. 1.—About the middle of the left femur is a slightly irregular area of bony structure. This mass is traced on the anteroposterior as well as the lateral view.

be inclined to believe. In reviewing the literature on this subject one is rather surprised to find reports of a great number of cases. The reason, however, for the accepted rarity of this peculiar pathologic condition is to be ascribed to the fact that most of the essays devoted to this subject deal with a great num-

* Read before the Section on Surgery, General and Abdominal, at the Sixty-Sixth Annual Session of the American Medical Association, San Francisco, June, 1915.

ber of distinct clinical processes grouped under one general head, "myositis ossificans." When one makes the attempt to segregate the different forms of this peculiar condition from the literature, one is led into confusion and misunderstanding, being confronted with a single term covering diverse clinical conditions which are as indefinite and mystifying as the pathology of the disease is in itself.

At the outset, therefore, I desire to make this point clear, that in this brief discourse I shall aim to direct attention to that morbid process wherein bony tissue finds lodgment within muscular structures, such process occurring after a single closed injury to the region thus involved. I believe that the term "myositis ossificans traumatica" should embody the foregoing, and no other similar process, though of the same category.

It is only the allotment of a distinct entity to this particular form of the disease that will enable us to bring about a clearer understanding of the etiology, which in turn will insure a more intelligent treatment of the affection, and consequently many an unnecessary amputation will be obviated.

Fig. 2.—Myositis ossificans. This area shows islands and beams of bony structure surrounded by dense fibers of connective tissue which are situated in the midst of the muscle bundles.

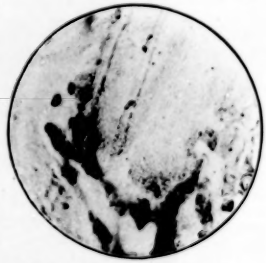

Fig. 3.—Myositis ossificans. This area typifies the process of metaplasia. Note the fibroblasts, cartilage and bony cells.

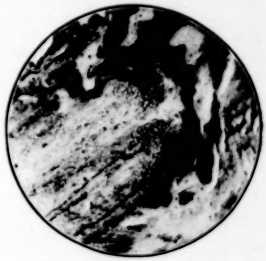

Fig. 4.—Myositis ossificans. Same as Figure 3. It shows the bony tissue more plainly.

Though two other cases have come under my observation, I deem best to introduce the subject by citing this individual case which formed the inspiration of this paper:

History.—A. C., man, aged 51, seen by me Dec. 5, 1913, with negative personal and family history, had always been in excellent health. The day previous, while engaged in unloading freight from a car onto a truck, the end of the latter accidentally struck his right thigh. The thigh, though severely bruised, did not incapacitate him, and he continued his work for several hours. He then walked home, a distance of over 2 miles. The next morning he noticed considerable swelling and ecchymosis, as well as pain which became exaggerated on motion of the extremity. It is at this stage that he first came under my observation, when the diagnosis of a severe contusion to the lateral aspect of the thigh was made. The treatment instituted consisted of rest in bed with elevation of the injured extremity. Hot fomentations had been constantly applied by the patient previous to my visit, and these were ordered to be continued. The patient followed this line of treatment for several days, when the swelling and ecchymosis had nearly disappeared; pain, however, still persisted when an endeavor was made to move the limb. These symptoms continued for about three weeks after the occurrence of the injury, when the patient again consulted me, at which time a careful examination disclosed a swelling of fusiform outline and about 3 inches in length over the external aspect of the middle third of the thigh (Fig. 1). The superjacent skin was still somewhat ecchymotic; otherwise there was no swelling. The "lump" was extremely tender on palpitation. Flexion of the knee beyond one fourth the normal range caused rather severe pain. The patient's general condition, however, remained unimpaired. A roentgenogram was taken the next day by Dr. S. B. Childs, whose report is herewith quoted: About the middle of the left femur on its outer aspect is a slightly irregular area of bony structure. (The margin of this area is traced by dots, as it is impossible to reproduce this shadow so that it may be clearly seen either on a lantern slide or print.) This mass shows distinctly both in the anteroposterior and the lateral view. Diagnosis: Bony growth springing from the shaft of the femur carrying the periosteum ahead of it.

In view of the outlined clinical as well as Roentgen findings, the diagnosis inclined toward periosteal sarcoma with a probability of myositis ossificans. An exploratory operation was advised, to which the patient readily consented.

Operation.—Jan. 7, 1914, about five weeks after the original injury, under ether anesthesia, an incision 6 inches in length was made over the lateral aspect of the thigh, embracing the most prominent part of the tumor. On cutting through the fascia lata and separating bluntly the muscular planes of the vastus lateralis, the handle of the knife encountered masses of bony deposit within that and underlying muscular structures until the thickened periosteum covering the middle portion of the femur was reached. When the latter was incised, the external and anterior surface of the femur was seen to be covered by cancellous bony deposit, not differing in any way from that developed on the surface of the long bones in cases of osteoperiostitis. This deposit was easily scraped off the normal shaft of the bone with a blunt curet. The section of the vastus muscle which was infiltrated with bony tissue was excised. A small rubber tube drain was inserted down to the normal bone. The fascia was sutured with chromicized gut, and the skin suture completed the operation. The drain was left in for twenty-eight days, when the wound was completely healed, no secondary infection having supervened. The entire extremity appearing normal, the patient was permitted to leave his bed and cautiously commence the use of the affected extremity. During the next three months the patient gradually resumed normal life and exercise, and at the end of this period was suffering no disability, except an occasional twinge at the site of operation. He soon afterward resumed his usual vocation, that of a freight stacker, which he follows to this day. The scrapings of bone from the shaft of the femur which were saved, together with the portion of the vastus muscle removed at the operation, were submitted to Dr. Philip Hillkowitz for pathologic diagnosis, who, after a very careful examination, made the following report: Pathologic specimen No. 878. Microscopic examination of sections from tissue removed from

Mr. A. C. reveal islands and beams of bony structure surrounded by dense fibers of connective tissue which are situated in the midst of the muscle bundles. Instead of the connective tissue, areas of cartilage are frequently found near the islands of bone. Occasionally collections of spindle-shaped cells are situated between neighboring beams of bone—cells that resemble if they are not identical with fibroblasts. The picture is that of the pathologic condition seen in so-called myositis ossificans (Figs. 2, 3 and 4).

In reviewing this clinical history, in conjunction with the Roentgen as well as microscopic findings, one cannot help but be impressed with the existing analogy between traumatic myositis ossificans and that of traumatic sarcoma.

Fig. 5.—Mixed round and spindle cell periosteal sarcoma of the right femur having its origin on the inner side of the femur and extending into the adductor group of muscles. Anteroposterior roentgenogram made before operation. Note the radiating columns of bone sticking straight out from the femur through the tumor-like thick bristles. A roentgenologic feature characteristic of periosteal sarcoma. (From Clinics of John B. Murphy, February, 1915.) Compare with Figure 1.

To begin with, we are bound to recognize that in the two conditions just named we have a new growth of bony tissue which has been stimulated by a closed injury. If we accept White's definition that a neoplasm is "an abnormal mass of cells, tissues or organs . . . resembling those normally present but arranged atypically, which grows at the expense of the organism without subserving any useful function," how are we to proceed to exclude the pathologic process found in myositis ossificans as shown by the foregoing microscopic findings from the category of true neoplasms, and if so how does it differ from osteosarcoma?

The causative factor in both instances is a single closed injury. The continuity between the time of injury and tumor formation is alike in the two conditions. The morbid process arises on the exact site where an injury has previously taken place. In the two instances, the growth is rather rapid, which is also true of its predisposition for the earlier periods of life.

Again, in the literature we find cases reported in which the original diagnosis of myositis ossificans was made by a competent pathologist at the exploratory operation; such cases having been previously diagnosed by expert roentgenologists as belonging to that class, and after a lapse of several months, in some cases two or three years, these patients presented so-called "recurrences," and subsequent operations disclosed these growths to be osteosarcomas.

To emphasize this point still farther, I quote from Coley's article on this subject:

> It is stated that the diagnosis of subperiosteal sarcoma had been made in all three of Finney's cases. One case operated on twice, recurred, necessitating three operations. Amputation at the hip-joint had been recommended and was about to be performed in one case, when first seen by Finney. In another case quoted by Finney (Whitelock) amputation of the thigh was performed under the mistaken idea that the condition was a periosteal sarcoma.

Numerous instances of this kind are reported by other observers, but for the sake of brevity they will be omitted from this paper.

Is there or can there be any doubt in any one's mind, that the two conditions are in all probability related? I have experienced in two cases the perplexing problem in which the roentgenologist as well as the pathologist would not commit themselves as to the true nature of the condition, being undecided whether the process was myositis ossificans or sarcoma. Subsequently, however, these cases proved to be myositis ossificans, the proof consisting in the fact that the patients were cured and were free from recurrences after four and two years, respectively. When we bear in mind that the roentgenogram as well as the microscopic picture of the tissue differ but little in the two conditions, we can hardly blame them for their reluctance in making a positive diagnosis (see Figs. 1 and 4, and compare with Figs. 5 and 6). There are some pathologists who assert that all these cases are sarcomas originally, and that soon after the accident a sarcoma develops in the bruised and strained portion of the periosteum, the sarcoma remaining of very slow growth and almost latent for years, when suddenly it lights up and grows with great rapidity. Against this theory, Coley cites the well-known fact that not infrequently benign tumors of the breast, cysts, cystadenomas or fibromas do undergo malignant degeneration and become carcinoma. Likewise he says, chronic inflammatory conditions often undergo similar degeneration in course of time. Old fractures also offer favorable sites for the development of sarcomas.

While considerable difference of opinion has prevailed and still prevails regarding the histogenesis of cancer in general, and notwithstanding the theory of Ribbert, who holds that in all cases of malignancy we must have an embryonic "cancer nest" present, I am in full accord with Coley's theory, namely, that certain cases of myositis ossificans will under favorable conditions become true sarcomas.

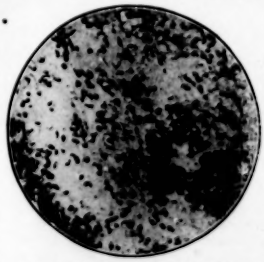

Fig. 6.—Mixed round and spindle cell periosteal sarcoma of the femur. This area shows cartilaginous metaplasia with calcium deposit at the extreme edge. (From Clinics of John B. Murphy, February, 1915.) Compare with Figures 2, 3 and 4.

The question before us, then, is to determine what are the predisposing causes that favor such a transformation. In my endeavor to answer this question, I hope to be able to throw some light on the essential factor in the obscure etiology, namely, trauma of the closed variety.

Before entering, however, into this analysis, permit me to pass in review the chief pathologic characteristics of the structural elements which dominate myositis ossificans as well as that of normal process of repair after injury to periosteum, bone or any structure belonging to the connective tissue variety.

We know that in both processes the cell products are of the connective tissue type; but instead of fibers,

as we are apt to picture to ourselves when speaking of this particular type of tissue, these newly formed structures are largely composed of cells wherein the ground substance is much less abundant in proportion to the cellular elements than in normal or adult tissue of that type. The cells of such metaplasms, if I may be permitted to use this term, resemble closely those found in the developing connective tissue of the embryo, or the granulation tissue of inflammation, in which they are known as fibroblasts. These fibroblasts in time will either become true functionating connective tissue cells or they may undergo various metaplastic changes with the resulting formation of either cartilage or bone. In the repair of a wound we have a fibrosis which consists of an increase of these fibers at the spot where the inflammation existed. This, in fact, constitutes the process of normal repair and absorption of an inflamed area (Adami). If, however, the process of inflammation is not combated, then the same fibroblasts, instead of forming the granulation tissue of a healing wound, may and often will form cartilage or bone.

In consideration of the foregoing facts, it becomes clearly evident that the dominant cell in myositis ossificans is identical with the one found in regenerating tissue following injury. To carry it still farther, we must admit that the same cell also typifies sarcoma.

The significance of these introductory remarks will become apparent when we classify injuries into their proper as well as essential subdivisions, namely, (a) closed and (b) open injuries, or "trauma occulta and trauma aperta."

It is absolutely imperative, when we speak of trauma in relation to myositis ossificans, to emphasize whether the injury is an open or closed one, because the process of repair which subsequently follows, and on which, in my opinion, the genesis of the growth depends, is so vastly different in the two forms named above, although both of them depend on the same cellular element for their growth, as I have clearly shown in the pathologic discourse of this paper.

Fig. 7.—The bony material is seen projecting well into the muscular structure in the area enclosed by the bracket.

Is it not rather unique, to say the least, that in over 200 cases of traumatic myositis ossificans which I have collected from the literature, not a single one occurred after an open injury? Is this a mere coincidence or does such an incontrovertible fact furnish us with a probable clue to the solution of this mystifying pathologic process? I am inclined to answer the latter part of this question in the affirmative.

Neither time nor space permits me to even touch on the various theories advanced regarding the pathogenesis of this interesting condition. After a great deal of discussion, the question is as indefinite today as it was in 1740, when the first case of this kind was reported by Freke in the *Philosophical Transactions*. The most generally accepted methods of origin, however, are that (1) a bit of periosteum is torn off at the time of the injury, and, becoming displaced, continues to form bone, or that (2) also as a result of trauma, the fibrous connective tissue or even the muscle fibers themselves undergo retrograde changes which result in bone-like formation. Against the first accepted theory I offer the experimental fact that the periosteum in itself is not osteogenetic. Murphy says that normal periosteum completely detached from bone and transplanted into muscle tissue bed in the same individual may produce a permanent bony deposit, but only if osteoblasts remain attached to the lower layer of the periosteum. He considers the periosteum to be a limiting membrane. Macewen likewise teaches that the function of the periosteum is to limit the distribution of osteoblasts, thus preventing their migration to the soft tissues. The second theory, though more logical, still does not conform to modern teaching, and is not carried out sufficiently in my opinion. I should also venture to assert my doubt in the statement made that the muscle tissue in itself ever undergoes degeneration.

Histologic study, verified by experimental work, has now definitely established that any new growth arises in a minute circumscribed area in which a progressive proliferation of cells takes place. It must also be remembered that the connective tissue of any neoplasm is partly derived from the preexisting connective tissue of the surroundings, and is partly a new formation. In studying the photomicrographs of the tissue removed from my case, we can readily see that the muscle bundles have undergone but little change, and that the components of the newly formed tissue are fibroblasts, cartilage and bony cells (Figs, 2, 3 and 4).

If I have made myself clear in what I have said above, it necessarily follows that, for certain pathologic reasons, when connective tissue structures are traumatized, the proliferation of fibroblasts or osteoblasts, as the case may be, takes place, and when the injury is a closed one this process of proliferation goes on and the new cells by their migration invade every available space in the surrounding and neighboring tissues until farther restrained by some new structure that they may encounter which acts like a limiting membrane. If we apply this pathologic principle to the subject under discussion, we must needs conclude that, given a closed injury to bony structure in a previously healthy individual sufficient to cause a proliferation of osteoblasts, and these in turn encountering no resisting structure to check their distribution, a bony deposit may result in any of the neighboring tissues, be they muscle tendon or fascia; whereas, in the case of an open injury involving the tissues named above, the migration of these fibroblasts toward the site of injury is not impeded. By making fine fibrillary connections with the cells nearby, they ultimately form the granulation tissue of healing wounds.

This, in brief, constitutes the difference in the pathologic sequences following a closed or open injury involving connective tissue structures. To this must be added the well-known fact that the power of regeneration is ordinarily greater in connective tissue cells

than in any other form of cells in the body, and that this activity is greatly enhanced when stimulated by an injury.

The correlation of the data presented above, together with the clinical findings, form the basis of my theory for the causation of myositis ossificans by means of closed trauma, which, if true, will also hold good in those cases in which the supervention of sarcoma takes place.

With the survey of the etiologic character of the lesion to be dealt with, we come to the phase of the subject that is of most concern to the surgeon. What is the most appropriate method of treatment to be instituted in these cases? One cannot review even a small portion of the literature dealing with the treatment without being impressed with the divergent opinion held by a number of writers on this subject; however, the majority of writers favor excision as the method of choice. If my theory is correct, then there is only one way in treating these cases, and that is by the conversion of a closed into an open wound —a treatment adopted in all of my cases and fully described in the first part of this paper. Drainage should be instituted in every case and kept up until the tissues feel normal to the touch. The Roentgen ray will also aid in deciding when to allow the wound to close (Fig. 7). With these precautions, operative procedures will be followed by complete cure without the danger of recurrences (Fig. 8).

318 Commonwealth Building.

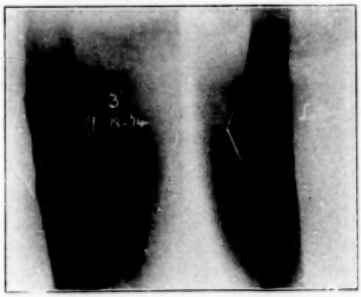

Fig. 8.—This roentgenogram, taken nearly nine months after the operation, shows considerable irregularity of the cortex of the femur in the area included by brackets.

ABSTRACT OF DISCUSSION

Dr. O. F. Lamson, Seattle: Dr. Shere's paper is exceedingly interesting on account of the unusual pathologic conditions described. It seems to me, however, that in his paper he has confined himself to one type only. There are two types—the type which develops from a single severe injury, and the type which follows repeated injury, less severe. An instance of the latter would be injury to the deltoid muscle which soldiers have, also horseback riders, in the muscles of the thigh. In regard to treating these conditions as sarcoma, there is room for discussion. It is true that sarcoma often follows a severe single injury, but the fact remains in those cases operated on which prove to be true myositis ossificans traumatica that there has been no metastasis. There seems to be two different pathologic origins for this particular condition. One where in severe injury the periosteum is torn from the bone and results in the formation of bone in the muscular tissue, and the other where the fibrous tissue results in bone formation. I saw a case in Seattle in which there had been a tearing off of part of the periosteum which resulted in finger-like projections of bone into the muscle. In the treatment of this condition it is important that the patient be observed until there is no further progress in the growth; otherwise there will be a recurrence, and the removal of the growth must be complete. Dr. Shere's statement is that these cases always occur in closed wounds; this is probably due to the fact that in the closed wound where there is considerable hemorrhage there is more fibrous tissue formed from which the osseous change takes place. If this is a factor in the formation of bone in muscle, the early incision into the area with drainage, would be a prophylactic measure of great importance.

Dr. Dean Lewis, Chicago: It is an interesting fact that traumatic myositis ossificans follows posterior dislocations of the elbow so frequently, and occurs after dislocations which have been reduced early. In this type of injury the periosteum is considerably stripped up, and the periosteal injury associated with this dislocation may account for the frequent development of myositis ossificans. The causes of the changes which lead to bone formation are not known. The changes in muscle and fascia which have been used to repair a defect in the ureter are very striking. Strauss has shown that the majority of fascial flaps used to repair defects in ureters become transformed into bone. I do not believe that there is any relationship between myositis ossificans and sarcoma. The diagnosis may be at times somewhat difficult, especially the histologic diagnosis, but in those cases in which a sarcoma has developed, the lesion was probably sarcomatous from the beginning. It is difficult to determine whether or when to operate. In many cases when let alone the bone gradually becomes smaller and may not interfere with function. I believe operation should be deferred in most cases until the bone has been considerably reduced in size. Undoubtedly the blood clot has considerable to do with the formation of the bone. I cannot agree with Dr. Shere in his early operation, for we cannot tell when myositis ossificans will develop. It certainly develops in but a small proportion of cases, and a routine operation would lead to needless surgery.

Dr. Alexius McGlannan, Baltimore: Pathologic new bone formation in the body may be an adaptation or some peculiar reaction to injury. We believe that myositis ossificans is a particular reaction to injury, just as keloid is due to injury to the skin, and therefore we believe it is not wise to operate early in the disease. If we wait in these cases the mass of bone shrinks and often does not require operation. In the early stage it requires a large operation. If operated on during the period when the tissues are forming bone, the traumatism will cause more new bone to form, adding this to what is going on from the original injury.

Dr. O. M. Shere, Denver: I expected some antagonism to my theory of myositis ossificans, as well as to the treatment. The theory was not attacked, for which I am grateful. With reference to the comparatively early operation which I advocate in my paper, I believe I am justified on the grounds that the process appears to me to be a forerunner of sarcoma in a good many cases. In other words, it is presarcomatous. One would remove a mole or a wart from the skin for the reason that some of these growths become malignant in the course of time; the same principle holds true here because of the existing cases wherein sarcoma supervened on undoubted cases of original myositis ossificans. That is why I advise early operation. I cannot see any similarity between keloid and myositis ossificans. As to the rôle of the periosteum mentioned by Dr. Lewis, I can only reiterate what I have stated, namely, that the periosteum in these cases loses its function as a limiting membrane, and that the bony deposit in the affected muscles does not depend on the osteogenetic function which its inner layer may possess. I am only too well aware that it will take a great deal of time before we realize the true value of the distinction between open and closed injuries. The sooner that difference is appreciated by the profession, the better will be our conception of some of the malignant diseases which have thus far been the bugbears of the surgical profession.

TRACHEA POSITION *

GERALD B. WEBB, M.D.
ALEXIUS M. FORSTER, M.D.
AND
G. BURTON GILBERT, M.D.
COLORADO SPRINGS, COLO.

In 1914, in an article on "Artificial Pneumothorax," we noted[1] a case in which a deviation of the trachea had for fifteen years been mistaken by one of us for a cavity at the left lung apex. Palpation of the trachea in the sternoclavicular notch in this man corroborated the Roentgen findings so easily that we have been led to investigate the tracheal position in a series of 100 cases during the routine physical examination of the chest of patients with pulmonary tuberculosis. The accompanying illustration demonstrates the method of procedure.

By applying the thumb in the manner indicated, the trachea can easily be felt and rolled beneath, in the majority of patients; occasionally a very thick neck will not allow the trachea to be so detected.

We have been surprised to find that in most cases of pulmonary tuberculosis, even in the early stages, the trachea is deviated to one side or to the other.

Palpation of the position may also be confirmed by auscultation. Loud tubular breathing and loud whispered sounds can be heard in front and often at the back, far to the side on which the trachea is deviated.

In a number of children whom we have examined, the position of the trachea at the sternoclavicular notch appears to be central. In normal adults it is also usual to find the central position, although exceptions may not be infrequent.

From the frequent deviation which we have observed toward the affected lung in known tuberculous patients, it is quite possible that deviation in apparently normal persons may be a result of an old healed one-sided infection.

Palpation of trachea in case of known decided deviation of trachea to left. Examiner should be seated in front of patient. Deviation to patient's left is best detected by palpation with examiner's left thumb, and vice versa.

The deviation of the heart apex to one side or the other can be observed to corroborate in some cases the deviation of the trachea.

Deviation of the trachea may be due to pleural adhesions together with fibrosis in the lung, or possibly to contraction of the lung roots alone, in which tuberculosis is so often considered to have originated.

Marked deviation may suggest adhesions of the pleura on that side, and such adhesions may forewarn us that the application of pneumothorax to that lung in advanced disease may not prove wholly successful.

We have found frequently that the movement of the trachea to the side of the healthier lung following the application of pneumothorax foretells a successful application of this procedure.

The trachea may be considered possibly as a pendulum, which might swing to the side on which contraction is taking place.

In the observation of the trachea position in 100 cases of pulmonary tuberculosis of all stages, the recognition of the side especially affected proved correct in sixty-nine, doubtful in nineteen, and incorrect in twelve cases.

In forty-four advanced cases of pulmonary tuberculosis, in the observation of the trachea position for deviation toward the lung most involved, the recognition of the side especially involved proved correct in thirty-eight, doubtful in five cases, and incorrect in one case.

In the observation of the trachea position of fifty-six early and moderately advanced cases with the history of occasional pleurisy or the finding of thickened pleurae, the recognition of the side especially effected proved correct in thirty-two cases, doubtful in five cases, and incorrect in one case.

It is usual for physicians engaged in examining for pulmonary tuberculosis to palpate and note the size and consistency of the thyroid gland. Immediately following this examination it is a simple matter to palpate the trachea just below the thyroid isthmus.

We believe from our results to date that the trachea should be palpated and auscultated in the routine examination of our pulmonary patients, and the position observed and noted.

We feel that such deviation may be an aid to the early recognition of pulmonary tuberculosis, and also may be of value in deciding the possibility of successful pneumothorax.

In one patient in whose case a competent Roentgen-ray observer has made the diagnosis of early aneurysm, the deviation of the trachea to the right was corroborated by two of us.[2]

* Read at the meeting of the National Association for the Study and Prevention of Tuberculosis, Seattle, June, 1915.

1. Webb, G. B.; Gilbert, G. B.; James, T. L., and Havens, L. C.: Artificial Pneumothorax, Arch. Int. Med., December, 1914, p. 883.

2. Since this paper was prepared, Dr. George Mannheimer of New York has called our attention to a paper on "Slanting of Rima Glottidis and Deviation of Larynx and Trachea in Diagnosis of Pulmonary Tuberculosis," by G. Baer, Deutsch. med. Wchnschr., Feb. 27, 1908. An abstract of this paper in THE JOURNAL A. M. A., April 4, 1908, p. 1156, reads as follows: "Baer found that the laryngoscope revealed in many cases that the trachea and larynx were dragged to one side by the shriveling process in pulmonary tuberculosis. The rima glottidis was found slanting in 27 per cent. of 200 tuberculous patients examined." Baer's paper is manifestly different from that presented above, although the basis is similar. The method which we have presented is at once more convenient and more reliable.

Evolution and Sex.—At the Second International Conference on Race Betterment, held in San Francisco, Luther Burbank discussed "Evolution and Variation with the Fundamental Significance of Sex." Mr. Burbank said: Abundant, well balanced nourishment and thorough culture of plants or animals will always produce good results in holding any species or variety up to its best hereditary possibilities, beyond which it cannot carry them, and lacking which, maximum development can never be realized. But a sharp line must always be drawn between the transient results, temporarily attained through favorable environment and the permanent results of selection of the best individuals for continuing the race. Only by constant selection of the best can any race ever be improved.

CASES FROM THE SKIN CLINIC OF LELAND STANFORD JR. UNIVERSITY SCHOOL OF MEDICINE *

HARRY E. ALDERSON, M.D.
SAN FRANCISCO

CASE 1 (Serial No. 4266).—Leukoplakia of tongue and palate in an Irish painter, aged 68. The dorsum of the tongue is almost entirely occupied by a very thick hyperkeratosis (Fig. 1). There is a similar process on the hard palate. The lesions have existed for over thirty years. The patient has cerebrospinal syphilis (of the meninges), diabetes mellitus and chronic nephritis. These diagnoses have been established by complete physical and the usual laboratory examinations.

Fig. 1.—Leukoplakia of tongue.

CASE 2 (Serial No. 20856).—Tuberculosis verrucosa cutis and epithelioma simulating blastomycosis in a Chinese laundryman, aged 55. For five years a slowly spreading granulating area has existed on the dorsum of the left hand (Fig. 2). The patient has been applying various kinds of Chinese remedies. Occupying most of the dorsum of the left hand there is a well-circumscribed "granulating" mass. Elevated about 3 mm. and slightly detached from it, a similar smaller lesion is over the third metacarpophalangeal knuckle. Scattered thickly through this area are numerous small deeply seated discharging pustules. The resemblance to blastomycosis is very striking. Repeated studies of fresh material, cultures and animal inoculations failed to reveal blastomycetes.

Sections of tissue, taken superficially as well as deeply, showed a well-developed squamous cell epithelioma (Professor Ophüls). Animal inoculations resulted in the development of tuberculosis (guinea-pig). The patient was given Roentgen-ray treatment (Coolidge tube, 4½ inches spark gap, target 10 inches from lesion, 40 M. A. minutes, filtered through 1 mm. aluminum), in May, 1915. He never returned. Our social-service department reported that he had left for China.

CASE 3 (Serial No. 11436—11).—Lupus vulgaris of scalp in an Italian woman, aged 68. The history is very indefinite. The patient states that her trouble began in 1904 (?) in a pustule which was surrounded by an inflammatory zone on her scalp. Her health always had been good. It is probable that the lesion existed for years before it was noticed. She presents typical nonulcerating lesions involving almost her entire scalp, forehead and face as far as the middle of the nose, almost the entire right cheek and right ear. The hair of her scalp is entirely absent in the affected areas. When she was first seen, in 1907, the diseased areas were covered with seborrheic crusts with marked infiltration beneath the same. The disease has slowly advanced downward over the face.

Some facts were of special interest. The Moro tuberculin reaction was positive. One injection of Koch's old tuberculin (0.00001) was promptly followed by severe focal as well as local reaction, headache and malaise. She has had Roentgen ray (Coolidge tube), 4½ inches spark gap, target 10 inches from the skin and a 1 mm. aluminum filter interposed.

August 1914, 32 M. A. minutes (followed by pronounced erythema).

October, 1914, 36 M. A. minutes (followed by pronounced erythema).

January, 1915, 26 M. A. minutes (followed by pronounced erythema).

As the radiodermatitis subsides, cicatrization extends in the diseased areas and the lupus foci seem to diminish in number; but still there remain many active lesions and the prognosis seems almost hopeless.

CASE 4 (Serial No. 22373).—Epithelioma responding to Roentgen-ray treatment in a Greek laborer, aged 26. In 1907 a small nodule appeared on the right cheek near the nose. This soon ulcerated and advanced in an outward direction, followed behind by healing. Syphilis was excluded. When first seen, the patient presented a thin, depressed scar 2 by 4 cm. extending horizontally under the right lower eyelid, with a deep ulceration (about 12 mm. wide and 12 mm. deep) at its outer termination adjacent to the outer canthus. This deep cavity was the result of the use of a cauterizing agent of unknown nature applied by some physician. There was no adenopathy. Under Roentgen-ray treatment (Coolidge tube) 4½ inches spark gap, target 10 inches from the skin and a 1 mm. aluminum filter interposed, the cavity steadily closed until now it has almost completely healed over. At present there is a deep red erythema due to the last treatment four weeks ago.

The following is a record of the Roentgen therapy:

December, 1914	72 M. A. minutes
January, 1915	30 M. A. minutes
February 1915	36 M. A. minutes
March, 1915	76 M. A. minutes
April, 1915	36 M. A. minutes
May, 1915	30 M. A. minutes

CASE 5 (Serial No. 13334).—Alopecia universalis in a boy, aged 12, who was born in California. The disease began in 1909 with several typical patches of alopecia areata.

Fig. 2.—Tuberculosis verrucosa cutis and epithelioma simulating blastomycosis.

Within a year the entire scalp and also the eyebrows and eyelids became completely devoid of hair. The loss of the hair of the eyebrows was preceded by redness and slight swelling there. Off and on small abortive tufts of hair an inch long have grown over the occiput only to fall out in a short while. Under the chin there has remained constantly very fine lanugo hair, but the hair inside the nostrils and ears has been lost. The family history is negative.

Complete neurologic examination by Doctor Schaller revealed no evidence of organic nervous disease, although it was noted that the boy was rather irritable and of a neurotic disposition. He is of average intelligence and appears strong physically. He has adenoids and an enlarged left tonsil. His teeth are irregular, deformed and decayed. The postcervical glands are enlarged and the left epitrochlear gland is palpable.

* Read before the Section on Dermatology at the Sixty-Sixth Annual Session of the American Medical Association, San Francisco, June, 1915.

A complete physical examination revealed no other abnormalities. The blood Wassermann reaction is negative. Owing to the difficulty of doing anything with the patient, other blood examinations and other laboratory work (excepting urinalyses) so far have not been possible. However, it is hoped to accomplish this soon.

CASE 6 (Serial No. 16845).—Recurrent erysipelas of the face with concomitant impetigo contagiosa in a girl, aged 13.

During the past year the patient has had four or five repeated attacks of typical impetigo contagiosa, with erysipelas involving the entire right upper half of the face, accompanied by the usual constitutional symptoms. At one time the process was complicated by the development of a right parotid abscess which had to be treated surgically.

Each time the condition has subsided after several injections of polyvalent streptococcus vaccine (50,000,000 dosage) and the usual local treatment. No foci could be found in the sinuses, but there exists a chronic lacunar tonsillitis, and both inferior turbinates are hypertrophied and in contact with the septum. The rôle of the streptococcus in these two affections is very evident here.

CASE 7.—Keratosis palmaris and plantaris hereditaria in two boys, (aged 2 and 4 years respectively) both presenting typical very marked lesions on the palms and soles, which lesions have been present since birth. The mother, several uncles and aunts and grandfather have the same abnormality. The condition is always better in the summer.

240 Stockton Street.

ABSTRACT OF DISCUSSION

DR. GEORGE M. MACKEE, New York: I would advise the use of the Roentgen ray in the case of keratosis plantaris et palmaris. I base this opinion on the fact that several examples of keratosis (ichthyosis, erythrodermia ichthyosiforme congenitale, keratosis palmaris et plantaris, senile keratosis, hyperkeratosis, callositas, etc.) have been cured in this manner in Dr. Fordyce's clinic.

DR. OLIVER S. ORMSBY, Chicago: About fourteen years ago we treated a patient with keratodermia, whose lesions were more extensively developed even than those present in the case demonstrated by Dr. Alderson. Very shortly after birth, in this instance, the palms and soles were almost black in color and the thickening was pronounced. Radiotherapy was employed in moderation, with beneficial results. We feel, however, that this method of treatment should be employed in this disorder with the greatest of care.

DR. JOSEPH ZEISLER, Chicago: An interesting feature of the case of keratosis lies in its hereditary element. The mother who has both hands affected, shows two little boys with the same affection. In a case like this which has come to my notice, I told the father that if he had children the girls would be affected. This is an observation which is not original with me, that hereditary features are transmitted. As regards treatment, I endorse what has been said here as to the effect of the Roentgen rays; but as Dr. Alderson has asked for suggestions, I should ask him to try the internal administration of thymus and watch the effect carefully.

With regard to the case of lupus vulgaris of the scalp, I should like to investigate the history of this disease. It is against my experience to think that this disease should have started so late in life. I should think it has been there for a number of years; and the earliest features, such as nodules, were not noticed. In a case of lupus commencing after 40 years, I should always doubt the diagnosis. I would like to suggest a treatment I have employed recently in an almost identical case of leukoplakia of the tongue and palate. I have often used radium, but it is not entirely satisfactory. I have frozen these patches with carbon dioxid snow to the point of exfoliation, with a good deal of success.

DR. EVERETT S. LAIN, Oklahoma City: As to Roentgen-ray treatment of keratosis, my experience has proved that the slow method does not give good results; but the intensive doses do. I would give this patient intensive doses, or push it to the second point of reaction and then cease treatment.

DR. RICHARD L. SUTTON, Kansas City, Mo.: After trying practically all of the various methods that have been recommended for the treatment of leukoplakia, I have found radium by far the most efficient. An exposure of from twelve to twenty milligram hours is usually sufficient to bring about a cure. Unfortunately, in some instances, as in this one, the areas are very extensive, thus rendering the choice of a suitable plan of treatment a difficult matter.

Alopecia may result from any one of a number of causes. In some instances a general intoxication may give rise to an alopecia which is clinically identical with alopecia universalis. In this particular instance, however, to me the symptoms are suggestive of syphilis, and I should like to ask Dr. Alderson if a serum test has been made. With respect to the treatment of alopecia areata, I have found small doses of hexamethylenamin (gr. 5 to 10 after meals) beneficial. It is probable that while some cases of alopecia areata are due to trauma or to direct ganglionic injury, the majority are due to infection, either of the ganglion or of certain nerve trunks, with a specific microorganism. It is probable that this is the reason why drugs like hexamethylenamin prove efficient.

DR. A. J. MARKLEY, Denver: I have observed a number of cases of leukoplakia in the hands of Dr. Levy of Denver treated by fulguration. The reaction is quite severe but subsides rapidly and is the most satisfactory method that I have so far observed.

DR. HOWARD FOX, New York: My experience is that of nearly every dermatologist, that practically nothing can be done to cure leukoplakia. All that can be done is to have the patient use a bland mouth wash and avoid smoking. I have never had permanent results even from the galvanocautery. I have recently seen a case of leukoplakia temporarily improved by radium (treated by a colleague). When last seen the lesion was slowly returning to its original condition.

DR. ERNEST DWIGHT CHIPMAN, San Francisco: I do not know that Dr. Alderson knew it, but the boy with alopecia had a positive Wassermann and had specific treatment for a considerable period five or six years ago when I first saw him.

ADENOMA OF THE BREAST

JACOB L. BUBIS, M.D.
AND
ALLEN GRAHAM, M.D.
CLEVELAND

Mrs. P., aged 20, primipara, Hebrew, with negative previous and family histories, presented herself for examination, when six months pregnant, and the following observations were made: She was a tall, slim woman, fairly well nourished but somewhat anemic. Abdominal and vaginal examination showed a six months' pregnancy. The breasts were large and pendulous, the lower borders reaching almost to the level of the umbilicus. The nipples were well formed. Along the outer borders of both breasts, but especially the left, definite, separate masses of breast tissue could be outlined, so-called supernumerary breast tissue.

In the upper, outer quadrant near the border of the right breast, a rounded, firm, slightly lobulated tumor, the size of a walnut, was seen. This was freely movable under the skin and over the underlying muscle. The patient complained of very little pain, and stated that she noticed the tumor about three weeks previously.

About three weeks later she noticed another much smaller tumor in the right axilla, and toward the end of pregnancy two other smaller growths could be palpated in the axilla. At times all these growths would increase in size and become painful.

Twenty-four hours after a normal confinement, the breasts became engorged with milk and the larger tumor almost doubled in size. It became very tender and painful, and

showed signs of an acute inflammation. The skin over it also was inflamed. The axillary growths also showed the same reactions, but in a milder degree. Ice was applied and gave much relief.

On the eighth day after the confinement, the tumors were removed under ether anesthesia. They were easily shelled out, as they were not adherent to the skin or underlying

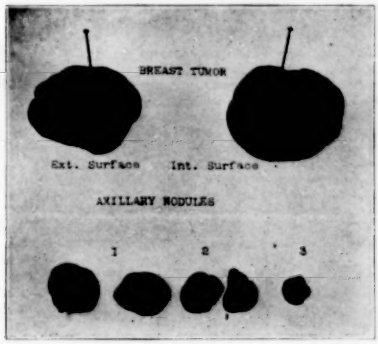

Fig. 1.—Breast tumor and axillary nodules, 9/10 natural size.

muscles. A considerable exudation of a milk-like fluid filled the cavities, showing the intimate association of the tumors with the breast tissue. The ducts were tied and the wounds closed. Four days later the incisions broke down, and considerable milky fluid exuded, causing milk fistulas,

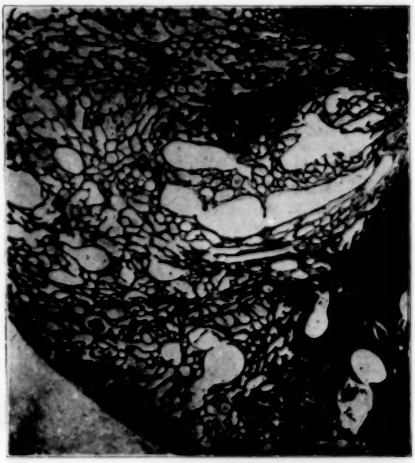

Fig. 2.—Section from axillary nodule No. 2, × 16.

which gradually closed by granulation about a month later. Six months later there were no signs of other growths.

PATHOLOGIC REPORT BY DR. GRAHAM

Specimen, received in liquor formaldehydi, consisted of four pieces of tissue. Nos. 1, 2 and 3 were removed from right midaxillary region; No. 4 from superior margin of right breast. Preserving fluid distinctly cloudy-milk in appearance.

Breast nodule is 4 by 3 by 3 cm. in size; is distinctly encapsulated, coarsely lobulated; capsule thin, glistening, grayish-opaque over most of its surface, with some dark, reddish-purple areas apparent beneath; rather elastic in consistency; cuts easily; considerable milky fluid escapes and may be expressed; cut surface uniform, grayish opaque, decidedly spongy in appearance, faintly and coarsely lobulated; stroma slight; about one half of cut surface is dull, mottled, reddish brown, apparently hemorrhagic with numerous small irregular, opalescent areas, apparently hyaline stroma; in a few places there are whitish granular areas of necrosis.

Axillary nodules, respectively, 18, 15 and 10 mm. in diameter, are thoroughly encapsulated, lobulated; have the same character of capsule consistency and gross appearance as the breast nodule; cut surface also the same, and same milky fluid escapes and may be expressed. No. 1 is more hemor-

Fig. 3.—Colostrum formation in axillary nodule, × 340.

rhagic and shows more islands of necrosis than Nos. 2 or 3. No. 3 is uncomplicated by hemorrhage or necrosis.

Microscopic Examination.—Sections from axillary nodule No. 2 show a loose, thin, rather cellular fibrous capsule from which a fine, cellular, edematous capillary stroma enters the tumor to form the supporting framework for the very glandular tissue which is the striking part of the specimen. These glands consist of large irregular spaces for the most part lined by a single layer of large pale vacuolated cells with large round or oval vesicular nuclei, having a rich chromatin network and a well-defined basophilic nucleolus; nucleus situated toward the basal end of the cell; the protoplasm is pale, greatly vacuolated and gives the appearance of being filled with coarse fat globules, especially at the free end of the cell. In many of the smaller spaces there is a piling up of cells and filling of the lumina with large pale vacuolated cells, some of which are desquamated and lie free in the lumen. Mitosis not observed. Histologically, the process is exactly comparable to colostrum formation in a lactating breast. In

some areas there is extensive hemorrhage into the stroma, with necrosis of the glandular tissue; in these areas are collections of coarse, granular, brownish pigment free in the stroma and being taken up by the phagocytes. There is no histologic evidence of malignant disease; no lymphoid tissue present.

Sections from the breast nodule, in the well-preserved portions, show the same microscopic characteristics as described above. In addition, sections from the dark hemorrhagic portion show extensive ischemic necrosis, so that the tissue as a whole takes a diffuse eosin stain and the gland cells are hardly distinguishable from the stroma cells. There is considerable diffuse hemorrhage, extensive leukocytic infiltration, with some plasma cells and a few eosinophils. A striking feature is the very scanty stroma in these breast and axillary tumors.

Diagnosis.—Pure adenoma of breast and accessory breast tissue in the axilla with colostrum formation.

COMMENT

This case exemplifies several interesting points in the pathology of the breast:

1. It is an indubitable instance of the presence of accessory breast tissue in the axilla. That the axillary tumors are not to be regarded as metastases from a primary malignant breast tumor is evidenced by the fact that the breast tumor (No. 4) exhibits none of the histologic characteristics of a malignant breast tumor, and more important still by the fact that the axillary nodules are independent, entirely encapsulated, histologically benign lesions, showing not the slightest trace of lymphoid tissue, as would almost certainly be the case were these metastatic growths from a primary malignant tumor of the breast.

2. The character of the individual tumors. All are purely adenomatous in type and quite different histologically from the usual fibro-epithelial breast tumors—fibro-adenoma and intracanalicular fibroma.

3. Each tumor presents the typical cellular changes of colostrum formation as observed in a physiologically active breast in the first week following delivery. It is interesting that the axillary nodules with no apparent connection with the breast proper, as well as the largest tumor, removed from the margin of the breast, show the same colostrum formation. This is a good example of the response of physiologically active cells, though in an anomalous situation, to the physiologic stimulus for the tissue (breast) to which these cells are homologous.

1725 East Eighty-Second Street.

Short-Cut Pyorrhea Cures.—It should be made clear to every one who is interested in this subject, either as patient or dentist, that pyorrhea is not cured by vaccines, tartar solvents, emetin, ethyl bromid spray, succinimid of mercury, pyorrhocide, faith cure, Christian Science or osteopathy. The dentist who relies on vaccine, emetin, or other medicinal agents for the cure of pyorrhea, in the absence of good instrumentation, will reap a harvest of disappointed patients. Used alone, the best that can be expected of any one of these agents is a temporary modification or elimination of one or more of the symptoms. The men who have given us the report of their clinical experiences in the use of the above agents have not laid claim to producing cure through medicinal agents alone, but have failed to place sufficient emphasis on rational surgical treatment and the impression has gone forth that all that is required is a good hypodermic outfit and a definite quantity of the desired remedy and the patient will be immediately placed on the road to health and happiness.—Edgar A. Honey, D.D.S., *Dental Summary*, September, 1915.

GASTRO-INTESTINAL STUDIES

X. AN INVESTIGATION OF THE GASTRIC RESIDUUM IN OVER ONE HUNDRED NORMAL CASES *

CHESTER C. FOWLER, PH.D.
MARTIN E. REHFUSS, M.D.
AND
PHILIP B. HAWK, PH.D.
PHILADELPHIA

Harmer and Dodd[1] have shown, by means of the Roentgen rays, that the complete removal of the gastric residuum with the aid of the usual stomach tube is by no means certain. This finding has been further confirmed by Rehfuss, Bergeim and Hawk,[2] who have succeeded in removing, from the normal fasting stomach, quantities of residuum greatly in excess of that obtainable by the old method. Loeper,[3] Zweig,[4] Kemp,[5] Wolff,[6] Strauss,[7] Riegel,[7] and Soupalt[7] assert that the quantity of residuum in the normal fasting stomach should not exceed 20 c.c., and that there should be no microscopic food residues. Rosin and Schreiber[8] declare that the quantity of residuum is not of much importance, as a pathologic factor. In thirteen samples of normal residues obtained by Rehfuss, Bergeim and Hawk,[2] none were found to be so small in volume as the 20 c.c. suggested by Loeper and others, while five were very near the 60 c.c. limit suggested by Rosin and Schreiber, and four were greatly in excess of this figure. Oettinger[9] says that when the amount of residuum exceeds 150 c.c., food débris or retention is almost constantly observed, and that a diagnosis of stenosis can be made unhesitatingly. However, Rehfuss, Bergeim and Hawk[2] had one case of 180 c.c. of residuum and another of 120 c.c.; yet in neither were any macroscopic food residues found. This absence of macroscopic food residues was true of all the cases examined, although in a few cases fat globules and vegetable fibers were found microscopically.

In regard to the cause of the residuum, it has been suggested by Loeper[3] that there is an increased molecular concentration of the residuum, and that this favors pylorospasm and a consequent retention of material. The presence of bile in a number of the residuums of Rehfuss, Bergeim and Hawk, and the absence of pylorospasm, would not tend to favor this theory. On the contrary, if the closure of the pylorus is due to an acid reflex on the mucous membrane of the duodenum, it is more probable that, in the absence of acid, the pylorus is in a relaxed condition. Sokolow[10] showed that saliva, bile and pan-

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* Because of lack of space, this article is abbreviated in THE JOURNAL by omission of the table of residuum. The complete article appears in the authors' reprint.

1. Harmer, T. W., and Dodd, W. I.: Sources of Error in the Use of the Stomach Tube for Diagnosis, Arch. Int. Med., November, 1913, p. 488.
2. Rehfuss, M. E.; Bergeim, Olaf, and Hawk, P. B.: Gastro-Intestinal Studies, I, The Question of the Residuum Found in the Empty Stomach, THE JOURNAL A. M. A., July 4, 1914, p. 11.
3. Loeper: Leçons de pathologie digestive, Series 2, 1912, pp. 17, 19.
4. Zweig: Magen- und Darmkrankheiten, p. 459.
5. Kemp: Diseases of the Stomach, Intestines and Pancreas, 1912, p. 133.
6. Wolff: Taschenbuch der Magen- und Darmkrankheiten, p. 22.
7. Strauss, Riegel and Soupalt, cited by Loeper.
8. Rosin and Schreiber, cited by Loeper.
9. Oettinger: Arch. d. mal. de l'app. dig., 1910, p. 563.
10. Sokolow: Dissertation, St. Petersburg, 1904 (Babkin: Die Aeussere Sekretion der Verdauungsdrusen, 1914, p. 150).

creatic juice were all capable of causing gastric secretion. Grobbel[11] maintains that saliva is always expelled from the stomach at the close of the meal.

Oettinger[9] suggested that although the bile reaction of the residuum might be negative, still there would be, in some cases, a distinct yellowish or greenish-yellow color. This fact has been further substantiated by the work of Rehfuss, Bergeim and Hawk and by the present contribution. Sartory[12] showed the presence of a yeast in the gastric residuum to which the color was due. He designated it as *Cryptococcus salmoneus*. We have shown, however, that not in all cases is the color due to yeast, as many times a strong bile reaction was demonstrable. Oettinger[9] suggests that, as the acidity of the residuum becomes stronger, the richer in yeasts it becomes, and the poorer in microbes. In our present work, if the color may be taken as an indication of the presence of yeast, it can be said that, as a rule, color appeared more frequently in a high acid concentration and more frequently there was no color in a low acid concentration. Occasionally, however, no color was obtained in high acidities, and strong color in low acidities.

Loeper[3] has suggested the use of the volumes of residuums in relation to the diagnosis of ulcer. However, as has been shown by Rehfuss, Bergeim and Hawk,[2] this is open to great error, and its value is very questionable. Recently Meunier[13] found that the freezing point lowering (cryoscopic index) of the stomach contents was 0.35 degree C. He suggested the use of this fact in the administration of medicaments. He demonstrated that when medicaments were given at a concentration having the same freezing point lowering, they passed through the stomach with maximum rapidity. He concludes that if medicines are given in solutions with a freezing point lowering of 0.35 degree C., the least gastric disturbance will result.

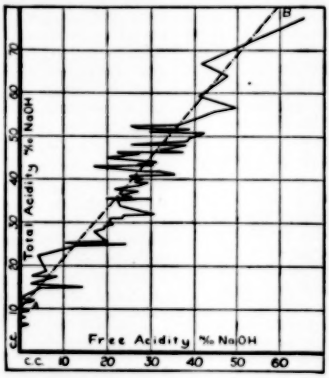

Chart 1.—Relation of total and free acidity of residuums.

In pursuance of the work on the gastric residuum which has already been undertaken in this laboratory,[2] it was decided to make as complete a survey, chemically and physically, of as many residuums as the allotted time would allow. Toward this end, over 100 residuums were collected, and as far as possible, examinations for the following were made: total acidity, free acidity, pepsin, trypsin, cryoscopic index and specific gravity; besides these, the volumes of the residuums recovered and their characteristics were noted. At the present time, a complete analysis of the inorganic constituents of the composite residuums is being made and will be reported in a later paper.

METHODS

Students in attendance at Jefferson Medical College gladly submitted themselves for the experimental work. In every case they were requested to drink no water at any time after their evening meal on the night previous. They presented themselves for the removal of the residuum at 8 o'clock the following morning, and every residuum was removed as near that time as was compatible with the experiment. Each man was given a thorough examination, physically and by questioning, to detect any abnormalities if they existed.

The residuums were removed by means of the modified stomach tube[14] already described in previous publications. The swallowing of the tube was accomplished without the aid of water. It was found that by coating the tube and tip with a thin film of petrolatum, and by placing the tip in the lower part of the pharynx, back of the tongue, the swallowing could be accomplished without much difficulty. Subjects who submitted themselves for the first time sometimes manifested gagging; but others found the swallowing extremely easy. This was especially true of those who took the tube for the second or third time. When the tube had reached the stomach (which was ascertained by measurements), the contents were aspirated from it, while the subject was on his back, stomach and on each side and breathing deeply. The liquid was immediately measured, and its characteristics noted, and it was placed in an Erlenmeyer flask and stoppered. The previously mentioned determinations were then made (as soon as possible), with the exception that in the cases of the cryoscopic index and specific gravity, it was frequently necessary, for want of time, to allow the residuums to stand a day or two. In those cases, the residuums were kept in the refrigerator.

In all the analyses, filtered liquid was used. The filtration was done by carefully fitting qualitative filter papers to funnels and moistening, the first few drops of the filtrate being discarded. Papers fitted thus were found to give a much clearer filtrate than when the liquid was run through a dry paper.

The methods for total acid, free acid[15] and pepsin[16] were those used in this laboratory in previous work.[17] The trypsin was determined by the method of Spencer,[18] recently elaborated in this department. The cryoscopic index was determined by means of the Beckmann apparatus, whereas a pyknometer was employed in the determination of the specific gravity.

AVERAGES ON THE COMPILATION OF THE NORMAL GASTRIC RESIDUUM

1. The average quantity removed in 100 cases was 52.14 c.c., the largest quantity being 160 c.c., and the smallest 23 c.c.

11. Grobbel: Ztschr. f. physiol. Chem., 1914, lxxxix, 1.
12. Sartory: Bull. de la. Soc. de biol., 1906.
13. Meunier: Bull. Soc. pharmacol., xxi, 389.
14. Rehfuss: Am. Jour. Med. Sc., June, 1914.
15. Sahli's Diagnostic Methods, 1913.
16. Mette: See Hawk's Practical Physiological Chemistry, 4th revised ed., pp. 19-20.
17. Rehfuss, M. E.; Bergeim, Olaf, and Hawk, P. B.: Gastro-Intestinal Studies, II, The Fractional Study of Gastric Digestion, with a Description of Normal and Pathologic Curves, THE JOURNAL A. M. A., Sept. 12, 1914, p. 909.
18. Spencer, W. H.: Jour. Biol. Chem., May, 1915.

2. In 67 cases noted, the residuum was in 29 cases (43.2 per cent.) colorless, and in 38 cases (56.8 per cent.) yellow or green.

3. The total acidity recorded in 102 instances averaged 29.9 in terms of tenth-normal sodium hydroxid, with the highest figure at 77.6, and the lowest at 2.4.

4. The free acid averaged 18.50, with figures ranging from 65.8 to 0.

5. In 72 cases, the cryoscopic index was taken, the average of which was —0.470, the extremes being —0.816 and —0.298.

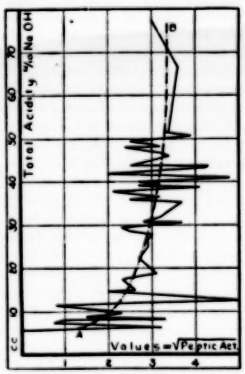

Chart 2.—Relation of pepsin content to total acidity of the residuums.

6. The specific gravity was carefully estimated with the pyknometer, and the average in 69 cases recorded was 1.0056, with the highest figures at 1.010 and lowest at 1.0036.

7. The pepsin concentration as measured by the Mette method was determined in 53 cases, and gave an average of $(2.8)^2$, highest $(5.0)^2$ and lowest $(0.7)^2$.

8. Trypsin was tested for in 26 cases, with an average of 9.1 units; 12 cases gave 16 units, several no reactions. In only 2 cases out of 26 (7.7 per cent.) was there no evidence of trypsin.

9. Microscopic examination revealed on no occasion gross food residues; on several occasions vegetable debris was found, but never meat fibers. Leukocytes, in considerable number, are found almost constantly, and occasionally swallowed material from the throat with bacteria.

COMMENT

The advantages of the method of stomach examination used in this laboratory have already been pointed out.[2] In this investigation we not only have been able to confirm the findings of our former investigation[2] of the gastric residuum, but also have established several facts in this connection which are of great interest.

We have also been able to confirm the falsity of the generally accepted limit of the normal residuum of the empty (?) stomach as 20 c.c. In over 100 normal cases there was always present in the stomach an appreciable residuum, averaging in all of the cases 52.14 c.c. This finding throws an entirely new light on the gastric residuum in the diagnosis of gastric conditions, particularly ulceration.

In over 43 per cent. of our cases the residuum was colorless, and in 56 per cent. yellow or green. The two forms, however, may occur in the same individual. Some instances were observed in which, in spite of the yellow or green coloration, a negative bile reaction was obtained. The explanation of this phenomenon may possibly be found in the work of Sartory,[12] who demonstrated microscopically a yeast in the form of spheroidal cells, the most important of which have been designated under the name of *Cryptococcus salmoneus*. The fact remains, however, that many of these yellow residuums gave a positive bile reaction. In a certain number of cases, there was a distinct separation of a bluish-green precipitate of microscopic spherules, although in all of the cases in which the residuum was saved for any length of time, a flocculation occurred, and if color was originally present in the solution, this was absorbed by the precipitated flocculi. It is probable that the pylorus is relaxed at periods of rest, and as we demonstrated that regurgitation of bile and pancreatic juice, or pancreatic juice separately, can occur, the presence of bile is easily explained. In acidities over 30, twenty-six out of thirty-seven showed bile, while in total acidities over 50, seven out of eight showed the phenomenon. This presence of bile more often in high acidities than in low would seem to indicate that regurgitation of juice takes place from the duodenum to neutralize, in part, these high acidities. This has been confirmed by studies on pathologic cases of hyperacidity. It is interesting to note that this residuum normally is physiologically active.

The question of the origin of the residuum is an important one. The only conclusion that can be reached by these studies is that the gastric residuum is due to a constant secretion of the gastric glands, and that these glands are practically never inactive. This conception is borne out by the more or less definite relationship between the characteristics of the residuum and the subsequent secretory response to the introduction of food into the stomach. Individuals who give a poor secretory response with the Ewald meal have, as a general rule, a residuum of the same character.

Pawlow[19] emphasizes the old idea of the inactivity of the glands, in the following words:

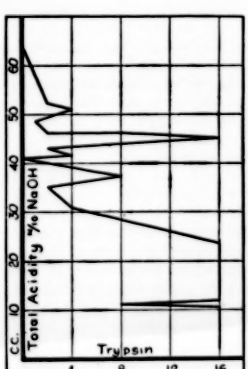

Chart 3.—Relation of trypsin content to total acidity of residuums.

> Thus, it was recognized by all authors that the glands only began to secrete when food entered the alimentary canal, and, thanks to the methods now at our command, hardly any physiologists doubt that their activity is strictly dependent upon the taking of food. The isolated miniature stomach, which in fasting animals is perfectly empty, begins to furnish juice within a few minutes after the animal has taken food.

How is it to be explained then, that in the perfectly normal untraumatized stomach, we have a physiologically active secretion, as the foregoing data show? Granting that both the regurgitation of pancreatic juice and the swallowing of saliva cause the stimulation and secretion of gastric secretion, how are we to explain the following finding, in a perfectly normal individual? The subject of Case B 106a, normal in every way, submitted to the passage of the tube on the empty stomach in the morning. Forty-nine c.c. of liquid were removed, and tests showed

19. Pawlow: The Work of the Digestive Glands, p. 23.

that the stomach was empty. Two hours later, during which time the person in question attended a lecture, was free from psychic stimuli, and swallowed no saliva, 29 c.c. were withdrawn, case B 106b. Furthermore, these two secretions were essentially the same in every particular. This result emphasizes the importance of the physiologically continued secretion.

In previous findings,[20] it seemed that distilled water gave a more pronounced flow of digestive juice than tap water. This would lend color to the belief that the stomach contents tend to maintain an equilibrium between themselves and the blood. We have further evidence of this relationship between the flow of gastric secretion and osmotic pressure, which we shall present in a later article.[21] In the present article, we have found, as stated, a definite cryoscopic index below that of the blood. Therefore, it might be assumed that there is a constant flow, or osmosis, of fluid from the blood stream through the mucosa. This idea of the osmosis of this fluid through the mucosa, rather than its being due to a secretion of the glands of the stomach, is supported by the fact that we have been able to show no relationship of the pepsin content of the residuum to its cryoscopic index (Chart 7).

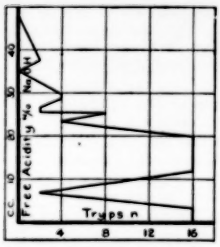

Chart 4.—Relation of trypsin content to the free acidity of the residuums.

Carlson[22] reported the finding on one individual, pathologic to the extent that he had a fistula, that the stomach was never free from a fluid secretion in the morning. We found *in all of our observations on perfectly healthy nontraumatized men a definite secretion in the stomach at all times.*

The relationship between total acidity and free acidity is definitely shown by Chart 1, in which it will be seen that *free acidity is rarely encountered until the total acidity exceeds ten.* In total acidities of over 13.5, there were no cases in which free acidity was not demonstrable. The largest majority of residuums possess total acidities which lie between 25 and 52. A few are found to lie above these values and considerably more below. The average acidities were 29.9, total acidity, and 18.5, free acidity. One point of great clinical importance is the fact that in only one instance in over 100 cases was the total acidity over 70. *This emphasizes the diagnostic value of high acidity when coupled with an increased quantity of residuum.*

Pepsin was quite constantly found, when tested for, in the residuums. From Chart 2, on which the values obtained for the peptic activity of the residuums have been plotted in comparison with the total acidity, it may be seen that *there is a definite relationship between the quantity of pepsin and the total acidity for low acid values.* As these acid values increase, this relationship disappears, until in higher acidities no proportion is apparent. In a former article from this laboratory,[20] some experiments were presented in which it was shown that no constant relationship between pepsin and total acidity was demonstrable. This finding can be explained on the basis that in the experiments cited there were some in which the acidities were of a relatively high value. Aliprandi[23] asserts that there is no strict parallelism between hydrochloric acid and pepsin, for sometimes pepsin may be present in the absence of hydrochloric acid. In none of our cases was hydrochloric acid absent, at least in combined form, when pepsin was present. Gregersen[24] says that there is a relationship between pepsin and total acidity, but not an absolute one. Pawlow, on the other hand, showed, in dogs, that the pepsin secretion was independent of the secretion of hydrochloric acid.

The trypsin content of the residuum is of great interest. It was found to be practically always present in the specimens which were examined for it. This we can explain only by regurgitation of fluid from the duodenum. A certain relationship is to be observed (Chart 3) between trypsin and total acidity; but that this relationship is rather one with the free acidity than with the total acidity is evident on comparison of Charts 3 and 4. The ratio between free acidity and trypsin is an inverse one. This we can explain by the supposition that high acidities encourage closure of the pylorus, and low acidities are accompanied, as stated above, by a certain degree of relaxation, and regurgitation of pancreatic juice. Low trypsin in high acidities may be also explained by the destruction of trypsin in high acidities. These data point to the fact that it is the free acidity of the gastric content which regulates closing of the pylorus, rather than the total acidity.

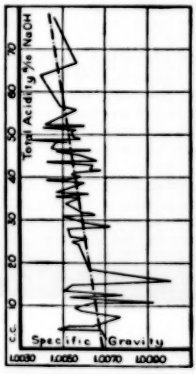

Chart 5.—Relation of the specific gravity to the total acidity of the residuums.

The results of the cryoscopic index are of considerable interest. The average cryoscopic index of the stomach contents, examined by us, was found to be —0.470. This is somewhat lower than the cryoscopic index of the blood (—0.560), as has already been mentioned, The cryoscopic index of the residuums (as a measure of the osmotic pressure) is independent of the total acidity (Chart 6). Aliprandi[23] has shown, in some work presented by him, a variation in the index from —0.280 to —0.723. Our variations were from —0.298 to —0.816. He also asserted that the index bore no relation to the amount of hydrochloric acid present. This we have been able to confirm, as already cited above. Sommerfeld[25] has shown on the gastric juice of a child (the average of eighty-four tests), a cryoscopic index of —0.488, and in the case of a child with

20. Bergeim, Rehfuss and Hawk: Jour. Biol. Chem., 1914, xix, 345.
21. Fowler, Rehfuss and Hawk, to be published.
22. Carlson: Am. Jour. Physiol., 1913, xxxi, 151, etc.
23. Aliprandi: Lavor, riv. chem. micros. clin., i, 230.
24. Gregersen: Arch. f. Verdauungskr., xix, 263.
25. Sommerfeld: Biochem. Ztschr., ix, 352; Arch. f. Kinderh., xlix, 15

a gastric fistula, a value of —0.610. Meunier[13] in one subject found the freezing point lowering to be —0.350. He suggests that this may be of therapeutic importance in the administration of medicaments.

The specific gravity is inversely proportional to the total acidity, as may be seen by consulting Chart 5. This is as one would expect. If the cryoscopic index remains the same as we have previously shown that it does, then in higher acidities, the lighter hydrochloric acid molecules must replace other and *necessarily heavier molecules*. If the cryoscopic index is to remain the same, the total number of dissolved particles (ions and molecules) must remain the same. What these molecules are which are thus thrown out of solution we are at present unable to say; but, perhaps, when the nature of these precipitated molecules is discovered, it may explain certain symptoms which are observed in cases of hyperacidity. This point is under observation in this laboratory at the present time.

The specific gravity indicates that the gastric residuum is one of the lightest fluids of the body, if not the lightest.

CONCLUSIONS

1. We have been able to confirm the finding of our previous investigation, that "the accepted limit of the normal residuum of the empty stomach as 20 c.c. is false." The average volume of the residuum, in over 100 normal cases, in the present investigation was 52.14 c.c. This finding throws considerable question on the value of an increased residuum in the diagnosis of ulcer.

2. The residuum found by us in every case had all of the qualities of a physiologically active secretion.

3. We believe that the gastric glands are never inactive, and cite experiments to demonstrate that even in the absence of normal stimuli (food, psychic, etc.), these secretions appear.

4. There is a definite relationship between the character of the residuum and the character of the gastric secretory response to a stimulus, as a test meal, for instance.

5. From the standpoint of osmotic pressure, there is a constant tendency toward the formation of a secretion in the stomach.

6. Both colorless and bile-colored residuums may be found, and the two may occur in the same individual.

7. The colored residuums appear more frequently in higher acidities and vice versa, a fact which is explained by the greater frequency of regurgitation in the former condition. This regurgitation has for its purpose the partial neutralization of the high acid stomach contents.

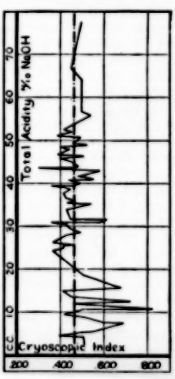

Chart 6.—Relation of the cryoscopic index to total acidity of residuums.

8. Total and free acidity vary directly with one another. It is pointed out that free acidity was rarely encountered until the total acidity exceeded 10. The averages in this series of studies were 29.9, total acidity, and 18.5, free acidity. The value of acid figures over 70, with an increased quantity of residuum, is emphasized as of diagnostic value.

9. There is a definite relationship between the quantity of pepsin and the total acidity for low acid values. As high acid values are approached, this relationship disappears.

10. Trypsin was found almost constantly in the residuum. It is shown to be inversely proportional to the free acidity. This is explained by the more complete closure of the pylorus in high acid conditions, in conjunction with the destructive action of acid on trypsin.

11. The average cryoscopic index of —0.470, as compared to an index of the blood equivalent to —0.560, gives evidence of a tendency for osmosis of material to take place from the blood into the lumen of the stomach.

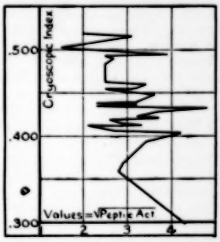

Chart 7.—The relation between pepsin content and cryoscopic index of the residuums.

12. High acidities are shown, by a comparison of the cryoscopic index and specific gravity data, to be accompanied by a throwing out of solution of certain molecules, the character of which is unknown at the present time.

13. The residum is one of the lightest fluids of the body, having an average specific gravity of 1.0056. This point is not without significance.

THE FALLACY OF THE INDISCRIMINATE INTERNAL USE OF BULGARIAN BACILLUS

WITH SOME EVIDENT DANGERS

ORVALL SMILEY, M.D.
INDIANAPOLIS

In a great variety of cases, the indiscriminate and empiric use of the Bulgarian bacillus as a therapeutic agent not only causes distress, but often, also, evil results. If its use is continued it produces a condition approaching acidosis.

An acid-producing organism, when used in internal medication in conditions in which there are anemia, cachexia, and emaciation, only adds more fuel to the fire by further increasing the acidosis which has been already produced.

That acid-forming organisms multiplying in the alimentary tract tend to neutralize the normal alkaline secretion of the intestines is not questioned. When taken by patients suffering from emaciating diseases, they evidently do neutralize it altogether, as will be shown later in the cases to be reported. By reducing the alkalinity of the intestinal secretions these organisms tend to diminish the alkalinity of the blood, thereby aiding in the production of a general acidosis.

When such a case is closely observed after their use the following symptoms may be noted: increased blood pressure, deepened respiration, increased urinary

output, sweating, digestive disturbances, aggravated constipation, and increased nervous irritability. All of these point to an increased acidity or a decreased alkalinity of the blood.

Within the last year I have observed a number of patients suffering from various cachectic conditions who had been given or who had taken Bulgarian bacilli on their own initiative, in whom the condition referred to above was noted. In some of them the symptoms manifested were alarming and distressful.

The following cases will emphasize the statement that extreme caution should be exercised in prescribing these acid-forming organisms:

Case 1.—Mr. J., aged 36, had pulmonary, intestinal, and peritoneal tuberculosis. Bacilli were found in both stool and sputum. His temperature was subnormal, and he felt lethargic, tired and cold. The blood pressure was 126, respiration 20. The bowels were loose, requiring little catharsis, though the patient had some intestinal distress. On the advice of a friend he took Bulgarian bacilli for four days. His blood pressure rose to 138, respiration to 24, temperature to 100, his pulse being full and bounding. He perspired profusely, was very nervous, had a great amount of distress in the bowels, and became extremely constipated. The abdominal distress lasted until large quantities of alkalies were given, when the symptoms subsided.

Case 2.—Mrs. C., aged 54, had carcinoma of the pancreas and stomach with slight diarrhea. The blood pressure was 146, the urinary output scanty, pulse 60 and very weak. Her physician gave her Bulgarian bacilli for four days. The abdominal distress so increased that it had to be controlled with morphin. The blood pressure rose to 164, pulse to 98, full and bounding, the bowels became constipated and required drastic medication with local measures to move them, the urinary output was greatly increased, the patient became very nervous and vomited. Alkalies in liberal quantities both by the bowels and by mouth gave her relief. This woman was very thin and emaciated. The condition of acidosis gave her great distress.

Case 3.—Miss M., aged 33, had pulmonary tuberculosis. Her blood pressure was 96. She was thin and emaciated, the skin being cold and dry. She had some gastro-intestinal disturbance, was slightly constipated and drowsy. The urinary output was scanty. Through the influence of some friends, she took Bulgarian bacilli for three days. She became very nervous, vomited, had severe headaches, the intestinal disturbance became quite severe, and the constipation was aggravated. Blood pressure was 112. There was profuse perspiration. A very noticeable increase occurred in the urinary output. It took several days with liberal doses of alkalies before this patient became comfortable.

I have noted this aggravation of symptoms following the use of Bulgarian bacillus in diabetes, nephritis, cancer, pernicious anemia, tuberculosis, in extremely constipated individuals, and in some aged persons.

In my judgment, Bulgarian bacilli should not be given in any form of tuberculosis, cancer, diabetes, gastric hyperacidity, gastric ulcer, or to very old, infirm, weak, emaciated persons, or those suffering from starvation, fevers, or wasting diseases, or in any form of toxemia, catabolic or chemical. Neither should it be given in cases in which beta-oxybutyric acid together with acetic acid and acetone are excreted in the urine—the condition known as acetonuria. This class of patients will not safely tolerate an additional acid producer, and this is especially true in diabetes.

Patients to whom an anesthetic is to be administered should under no circumstances be given Bulgarian bacilli nor should this organism be given afterward, until all danger of acidosis is past. The conditions mentioned all tend to cause acidosis, which is probably the ultimate cause of death in all of them. Therefore, it is quite apparent that anything that accentuates this condition is dangerous.

The Bulgarian bacillus may be useful in suitable cases, but these are limited and should be selected with exceeding care and caution.

When the entire human organism is in a state of chemical equilibrium, of balance or equipoise, in which the opposing forces (acid and alkali) exactly counterbalance each other, then the ionic equilibrium is such that the acid formed by the Bulgarian bacillus is quite sufficient to swing the chemical pendulum of the entire human organism into the grave and uncertain condition of acidosis.

In all cases in which acidosis is not and cannot be promptly controlled death inevitably results. Why then, in such grave conditions, should that risk be taken with an absolutely empirical medication? Why should we play with the powder when the fuse is lighted?

229 Newton Claypool Building.

FOREIGN BODIES IN THE THROAT

Thomas McSwiney Barrett, M.D., Dixmont, Pa.
Assistant Physician, Dixmont Hospital

The following is the report of a case in which a brass key and a large eye-screw were found, at necropsy, lodged in the larynx and pharynx:

The patient was a male negro, aged 40, deaf and mute, admitted to Dixmont Hospital after having committed murder while under a delusion of persecution. The case was regarded as one of paranoid praecox, as the man had many typical symptoms of that disease. Chronic nephritis, pericarditis and valvular disease of the heart also were present. The Wassermann test was negative. From the time of commitment he worked daily on the hospital farm until three weeks previous to his death, when he became disabled from an attack of rheumatism. While undergoing treatment for this illness, he was seized with what appeared to be an acute gastritis, marked by vomiting after taking nourishment, and died three days later of exhaustion.

Postmortem findings confirmed the presence of the diseases named and, in addition, led to the following discovery:

Lodged in the larynx was a brass key, 2 inches long, its ring end resting on the cords; while in the right anterior corner of the pharynx was found an eye-screw, 1½ inches long, its screw end extending upward about a quarter inch above the lower border of the opening into the larynx. No signs of inflammation were discernible, but the epiglottis showed slight excoriation on its under surface, which may have been due to the pressure of the upper end of the key at time of swallowing. Both articles were wrapped in cloth, much decayed and very foul-smelling. Although evidence is lacking to fix the exact time of the lodgment of these foreign bodies, the nature of the circumstances as well as the appearance of the articles at necropsy, as indicated above, seems to justify the assumption that they had been present in the throat for at least three weeks.

With the exception of the comparatively mild vomiting which occurred only after eating, there were no violent symptoms of coughing, gagging or choking, such as would be likely to accompany the presence of foreign bodies in the throat.

The supposition is that this man, having found these articles while working outside, recognizing their utility for a special purpose he had in view, and fearing to be deprived of them during the search to which all patients submit at bedtime, sought to conceal them in his throat, intending when necessary to recover them by regurgitation.

New Instruments and Suggestions

LOCAL ANESTHESIA IN INTRAVENOUS INJECTIONS

JOHN H. STOKES, A.B., M.D., CHICAGO

At the risk of seeming to offer a trivial suggestion, I wish to call attention to the advantages of inducing local anesthesia as a preliminary to intravenous injections, in which the larger bored needles, such as the 17 and 18 gage, can be used to advantage. The method as introduced by me into the dermatologic clinic of the University Hospital, Ann Arbor, Mich., in the administration of old salvarsan, consists in the injection of 1 or 2 minims of a 2 per cent. cocain solution with a very fine needle, immediately beside the distended vein at the point at which the large needle is to be entered. The injection should not raise a wheal, but should be given more into the subcutis than intradermally. Within a few seconds, anesthesia is sufficiently complete for the operator to make a careful and deliberate entry rather than a haphazard one, without a gesture of protest from the patient. After the larger needle has been pushed through the skin, the skin is drawn over the vein before the latter is entered. In difficult situations, as in the entering of small veins on the back of the hand or wrist, when the cubital, median or other large veins cannot be found, the increased assurance which the method affords the operator, and the cooperation of the patient, often make the difference between success and failure. Potential disadvantages of the method have not materialized in practice. The minim or two of cocain solution does not conceal even a deep vein if given as above, and in no case has the anesthesia induced been sufficient to mask the burning sensation which is the test of drug leakage around the vein. The method has had a thorough trial under the conditions of inpatient observation in the clinic referred to, and no evidences of undesirable sequelae have appeared. The effect on patients is decidedly gratifying. While not essential in every case, it is believed that this refinement in technic has a place in the treatment of nervous individuals and those with "hard arms."

7 West Madison Street.

IRRIGATING NOZZLE FOR CYSTOSCOPY—MODIFICATION OF THE YOUNG URETHROSCOPE —HOLDER FOR FULGURATION WIRES

JOHN W. CHURCHMAN, M.D., NEW HAVEN, CONN.

1. The irrigating nozzle shown in Figure 1 has proved such a help in cystoscopic examination that, despite its simplicity, it seems worthy of description. Previous to its adoption

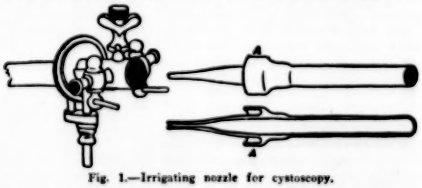

Fig. 1.—Irrigating nozzle for cystoscopy.

I had used, as most surgeons do, an ordinary glass nozzle, and had been much annoyed by the leakage which occurred about the nozzle, owing to the poor fit between it and the cystoscopic tube. No leakage whatever occurs if the nozzle here illustrated is used, for this is absolutely prevented by the metal cuff (*A*) which fits snugly about the outer surface of the cystoscopic tube. Moreover, when it is attached to the cystoscope, the nozzle remains in place without being held, and the examiner's hand is therefore free for other purposes.

2. In using the Young urethroscope I have found the instrument much more serviceable if a set screw (*A*, Fig. 2) be added to the lamp holder, so that the lamp may be set in any position desired. This will be found particularly useful when the instrument is being used in the female, for the urethroscope may then be held in place with one hand, the fingers grasping the light holder which, being tightly screwed to the examining tube with the set screw, acts as a handle to it. Without this set screw, the light holder flops about in most inconvenient fashion, when the female bladder is being examined and the instrument held roughly parallel to the floor.

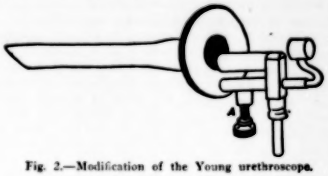

Fig. 2.—Modification of the Young urethroscope.

3. Those who have attempted to fulgurate bladder tumors through a catheterizing cystoscope have doubtless been much annoyed by the tendency of the insulated fulguration wires to curl up and therefore to follow badly the groove and lever guide of the instrument. I have found that if the wires be kept taut when not in use, this difficulty is largely overcome. The instrument here shown (Fig. 3) has been of service in keeping the wires straight. It consists of two pairs of screw clamps (*A* and *B*) on a stiff steel rod. The lower of these clamps is fixed to the rod; the upper clamp

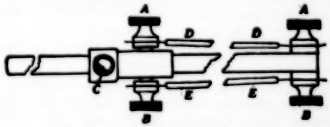

Fig. 3.—Holder for fulguration wires.

may be placed at any point on the rod desired and fastened in position by the set screw *C*. In this way the fulguration wires (*D* and *E*) of any length may be clamped in and kept constantly stretched. In the illustration, only the ends of the instrument are represented; the rod may, of course, be any length desired.

59 College Street.

METHOD OF FINDING TUBERCLE BACILLI IN SPINAL FLUID, AND THE CELL COUNT IN TUBERCULOUS MENINGITIS

JOSEPH ROBY, M.D., ROCHESTER, N. Y.

In the search for tubercle bacilli in the spinal fluid, two or three methods are usually advised:

1. Centrifuging and examining the sediment directly, or examining the sediment after drops superimposed on each other have been allowed to dry.

2. Allowing the fluid to stand without agitating it twenty-four hours and spreading the film which forms on a slide.

The first method has been unsatisfactory so far as I am concerned, and the second method satisfactory when the film can be manipulated correctly; but this has been difficult, and often the fluids are sent quite a distance or carried, and a good film will not form. The last is also the objection made by DuBois and Neal in a summary of their cases in the *American Journal of Diseases of Children* (January, 1915, p. 1). Unlike them, however, we have found the cell count in clear fluids to be of the greatest value and almost pathogno-

monic of tuberculous meningitis, even if the bacilli are not found. We have almost invariably found the cell count in tuberculous meningitis to be between 100 and 300 cells to the cubic millimeter.

If the fluid is sent to us or brought from any distance, we shake it up thoroughly and then draw some up into the white counter, either directly, or by first drawing up to the 1.0 mark with a diluting fluid (0.2 gm. methyl violet, 0.4 c.c. acetic acid and 100 c.c. distilled water), and then to the 11 mark with the cerebrospinal fluid. The cells are then counted in the blood-counting chamber. The balance of the fluid is poured into the sterile glass cylinder to be described, and later the search is made for tubercle bacilli.

The cylinder is used in the following manner:

A glass cylinder 20 mm. in diameter by 60 mm. in height is cleaned and sterilized, together with a glass coverslip 18 mm. in diameter. The coverslip is dropped into the glass cylinder. At the bedside the fluid is received directly into this cylinder (or if sent, as stated above, the fluid is poured into it); then a sterile cork is inserted, and the specimen is left quiet for twenty-four hours after the last disturbing (often it can be examined in a shorter time). The supernatant fluid is then carefully pipetted off, and the film, if one has formed, is allowed to spread itself over the coverslip. If a distinct film has not formed, it seems to work equally well. The coverslip is then removed by a platinum loop and forceps, dried in the air and fixed in a Bunsen flame. The staining is by carbol-fuchsin and heat, care being taken not to decolorize too much with the acid, and the decolorization is completed by 95 per cent. alcohol and counterstained by Löffler's methylene blue.

234 Culver Road.

AN IMPROVED BLOOD CELL COUNTING CHAMBER

C. C. BASS, M.D., NEW ORLEANS
Professor of Experimental Medicine, Tulane University of Louisiana, School of Medicine

The large number of counting chambers that have been devised and recommended would make one hesitate to recommend another one. Several years of experience in hematology and teaching blood counting, however, led me to think that the counting chamber described below has several advantages over those now in use. The general construction was suggested by Bürker's counting chamber, and the ruling is my own device.

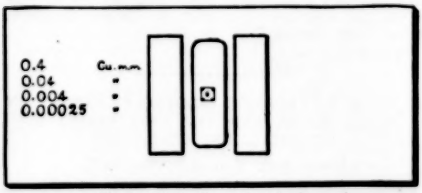

Fig. 1.—Blood cell counting chamber.

A small, oblong counting plate (Fig. 1) is cemented on a heavy object slide 76 by 33 mm. On either side of the counting plate there is cemented on the slide a rectangular glass plate so as to leave a gap of 2 mm. between the edges of the counting plate and the inside edges of these rectangular plates. The latter are exactly 0.1 mm. higher than the counting plate, so that when a cover glass is placed over both there will be a space of 0.1 mm. between it and the counting plate. This open construction facilitates cleaning the apparatus and also making the preparation.

The ruling (Fig. 2) consists of a square of 2 mm. side. This is divided into ten rectangles 0.2 mm. by 2 mm. for counting white cells.

For counting the red cells, there are superimposed on the ruled space, at each corner and in the center, five squares of 0.2 mm. side, each further divided into sixteen small squares of 0.05 mm. side. This superimposed ruling is disregarded when counting the white cells.

This counting chamber is devised to be used in counting either or both white cells and red cells in the same preparation and with the same dilution, which should be 1:100. A large portion of the time required to make a blood count is consumed in making the dilution and the preparation.

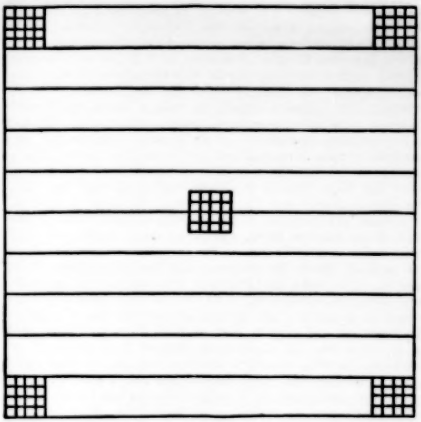

Fig. 2.—Method of ruling.

Therefore, it is an advantage to have to make only one dilution and one preparation for all. Only one pipet is required. It should dilute 1:100.

The calculation for white cells is made by multiplying the number of cells counted in the entire ruled space by 250. For the red cells, the number of cells counted in the five squares is multiplied by 5,000.

The simple ruling is an advantage over the several more complicated rulings. More correct estimates of the red cells can be obtained by counting several areas of the preparation at a distance from each other, than by counting all in a central area, as many of the other counting chambers require. This is especially true when there is, as usual, more or less unequal distribution of the cells on the counting plate.

The long counting plate avoids the necessity of being so exact as to the amount of the blood dilution placed on it, which is necessary with the usual round counting plate.

The apparatus is made by Carl Zeiss and E. Leitz.

SPECIFICATIONS FOR MANUFACTURERS

All long lines are 2 mm.
Each rectangle is 0.2 mm. by 2 mm.
Entire square ruled space contains 4 sq. mm.
Cubic content of entire ruled space 0.1 mm. deep is 0.4 cu.mm.
Each large square is 0.2 by 0.2 mm., and contains 0.004 cu.mm.
Each small square is 0.05 by 0.05 mm., and contains 0.00025 cu.mm.
Cubic content of the five large squares is 0.02 cu.mm.
Ruled rectangular plate, 6 by 20 mm.
Outside rectangular plates, 6 by 22.
Space between plates, 2 mm.
Mount so that rectangles run lengthwise of the object slide.

A NEW AND HANDY INOCULATION NEEDLE

FRANK M. WOOD, M.D., CHICAGO

In bacteriologic work, the time element is a matter of considerable importance, both for purposes of rapid and accurate diagnosis and in the rapid preparation of autogenous vaccines. In the treatment of many acute infections, especially in sepsis following operation, childbirth or wound infection, it is often very desirable to have an autogenous vaccine prepared over night, when possible. A satisfactory culture is often delayed by the breakage of the old style loop, made with the glass rod and platinum wire. The rod breaks, when carried in the case, and even when flamed, the glass breaks easily, when too quickly heated. The loop may be lost in the midst of an attempt at obtaining flakes from a fluid medium, and the whole process of culture made difficult or even impossible by the loss of the loop when it is most needed. A new unbreakable loop is the thing sought, and the necessity has resulted in the attempt to make one, which has been found to meet the demands.

The loop shown in the illustration is made entirely of brass, nickel plated. It consists of two shanks of equal length, bound together by a hinge at the center, and closes like a knife. The distal end is a brass tube, tapering to a small tip, for the insertion of the platinum loop. The loop is inserted and fastened by merely tapping the soft brass end of the tip with a hammer.

The proximal end is also of brass tubing half round, and receives the distal portion, which folds into it, like the blade into the knife handle. The loop is also protected by a piece of brass shaped to the size and length of the loop. There are two loops for use with the needle holder, a triangular loop, for spreading secretions on the surface of plate cultures, and an ordinary round loop for regular inoculations. The triangular loop is protected by a piece of brass, shaped in a triangular cup flange for the reception of the loop at the proximal end of the needle handle. The ordinary loop is protected by an ordinary round brass cup.

Needle holder and loops.

The instrument may be folded, so that it occupies small space in the hand or pocket case. It is not easily broken, since the needle is protected when closed. It is long when open, so that it may be used in liquids to obtain flakes or shreds from tall bottles or tubes, avoiding the contamination of the handle. It may be flamed up to the middle without fear of breaking the loop, and all contaminating fluids burned away. Lastly, and most important of all, it may be easily mended, should the platinum loop break. A tap with a hammer opens the tip, and the old loop may be reinserted. Another tap with the hammer fastens it, and the loop is as good as new. I offer it to the profession as an aid to rapid bacteriologic diagnosis.

209 South State Street.

RECENT SIMPLIFICATIONS OF THE SYRINGE METHOD OF TRANSFUSION

LESTER J. UNGER, M.A., M.D., NEW YORK

Seven months ago (THE JOURNAL, Feb. 13, 1915, p. 582) I described a new method of syringe transfusion. Since that paper was published I have greatly simplified the technic by my experience with forty transfusions.

The chief changes are: 1. Only one record syringe is necessary for a transfusion of whole unmodified blood, regardless of its amount. The trained assistants to clean the syringes are, of course, likewise done away with. 2. One *need not paraffin* the rubber tubing connecting the instrument to the cannulas.

Dr. Charles A. Elsberg, attending surgeon to Mount Sinai Hospital, suggested to me that clotting in the syringe might be prevented if the latter be kept cool by a continuous spray of ether. The cooling of the barrel of the syringe should delay the coagulation time of the thin layer of blood in contact with its walls sufficiently to permit the syringe to be emptied before any clotting occurs. Since by my method of transfusion the blood is in the syringe for only five to ten seconds, no marked reduction of the temperature of its entire volume can occur.

In addition, the cold should counteract the expansion of the piston, produced by friction between it and the glass barrel and by the heat of the blood. By keeping the metal piston contracted, one should be able to use the syringe an indefinite number of times.

Dr. Elsberg, with my assistance and with my apparatus investigated (on dogs) the feasibility of this plan. We found, as we expected, that clotting in the syringe and difficulty in working the piston can be absolutely prevented by means of the ether spray, and that therefore any amount of blood can be transfused with one record syringe. We found, further, that if the spray was stopped until the piston refused to work, a short spraying with ether over the piston made the use of the syringe again possible. By this means, therefore, the great advance was made, that one syringe can be used for the entire transfusion regardless of the amount to be transfused.

I have used this method since April, 1915, in twenty-eight transfusions with excellent results, and several of the surgeons of the hospital have had great satisfaction with the procedure.

It is unnecessary to cover the walls of the rubber connecting tubes of my instrument with paraffin. I have transfused as much as 1,000 c.c. with nonparaffined tubes.

THE PRESENT SIMPLIFIED TECHNIC WITH MY APPARATUS

Fundamentally, my instrument is a stopcock, which alternately connects a syringe for blood to the donor and at the same time a syringe with saline to the recipient; by turning the cock, the syringe with blood is immediately connected to the recipient and the syringe with saline to the donor.

Alongside of the instrument, which has been fixed to a table, the arms of the patient and donor are placed. The tubes leading from the instrument are connected to the cannulas after the latter have been inserted into the recipient's and donor's veins. The operator then inserts a record syringe into the instrument and aspirates blood. When the syringe is filled, the assistant turns the stopcock, and the operator injects the blood. This is continued until the desired amount has been transfused. By means of the ether spray, a stream of ether is played on the barrel of the record syringe while it is being filled with and emptied of blood. The spraying apparatus consists of an 8-ounce bottle (filled with ether) into which is plugged the top of an ordinary throat atomizer. In order to produce a continuous stream of ether, I replace the single rubber bulb of the atomizer with the double bulb of the actual cautery.

The syringe method of transfusion has definite advantages which make it a method of choice when a transfusion of *whole unmodified blood* is desired. The method I have just described is an extremely simple and certain procedure. By it a transfusion of any amount can be very quickly done with *one* record syringe and *one* assistant. Skill and dexterity of the operator, which the older methods presuppose, are unnecessary.

Mount Sinai Hospital, Fifth Avenue and One Hundredth Street.

Heredity and Antisocial Qualities.—A better understanding of heredity leads to a greater tolerance and a wiser method of dealing with those whose inherited qualities are antisocial, whose tendencies are evil.—F. M. Sandwith, *Clinical Journal.*

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, SEPTEMBER 18, 1915

STUDY OF THE OLDER MEDICAL PERIODICALS

From the files of the earlier medical periodicals, as Sudhoff has pointed out, much of the medical history of the past could be reconstructed. This is particularly true of the English and American medical periodicals of the eighteenth and early nineteenth centuries, which often have the gossipy flavor of those breakfast-table leaflets, the *Spectator* and *Tatler*. In the "Nova et Vetera" columns of the *British Medical Journal*, many interesting data and curiosities of this kind have been gathered here and there, and are very readable. In the last four numbers of the *Dublin Journal of Medical Science* (April-July, 1915), Dr. T. Percy C. Fitzpatrick, registrar of the Royal College of Physicians of Ireland, gives an historical account of the Irish medical periodicals, beginning with the quarterly *Dublin Medical and Physical Essays* of 1808, the two volumes of which constituted the first medical journal published in Ireland. It owed its inception to the fact that, following the passing of the school of physic act (1800) and the rebirth of the School of the College of Surgeons, Dublin became a medical center, attracting outside students, and medical teaching began to be a profitable occupation. A full bibliographic account of the Dublin *Essays* is given, with facsimile title page and an author index, which includes, among other things, Whitley Stokes' original description of pemphigus gangraenosus (ecthyma terebrans), a paper by William Stokes on the effects of antimonial powder in cases of effusion into the head, and an obstetric review by Dewees. The journal being thus devoted to original communications and reviews, the question of medical reform was expressly excluded. It would have been interesting if some of the postmortems, such as the "morbid dissection" of Todd (ii, 80-83), had been analyzed by their historian.

The next periodical, in order of time, was the *Dublin Hospital Reports* (five volumes, 1817-1830), which contains some of the Meath Hospital reports by Graves and Stokes; papers by Robert Adams on heart disease; John Cheyne on apoplexy, with fatty degeneration of the heart, melena, "fatal erethism of the stomach," feigned diseases of soldiers, acholemic jaundice, James' powder in apoplexy and disease of the inguinal lymphatics; Colles on dissection wounds, fracture of the femur, cause of lockjaw in infants (trismus nascentium), varus and rectal disease; Graves on the effect of posture on the pulse; Jacob on a tailed man; Marsh on spasm of the glottis; Percival on an epidemic petechial febricula; Percival on the deleterious effects of green tea; Porter and White on tracheotomies in "cynanche laryngea"; Ridley on "berri-berri" in Ceylon, and ligations of the subclavian by Todd and the external iliac by Wilmot.

In 1817-1828, came the five volumes of *Transactions of the Association of Fellows and Licentiates of the King and Queen's College of Physicians in Ireland*, which contain Beatty on the treatment of ascites by *Pyrola umbellata;* S. Black's dissections of two drunkards; W. Brooke on liver cough; A. Carmichael on dreaming; tracheotomies, excision of the parotid and a hip-joint amputation by R. Carmichael; Corrigan on the motions and sounds of the heart; F. Cuming on peripneumonia in children; Evanson on hydrocephalic fever; D. Falloon on rheumatic heart disease; E. Geoghegan on megacolon (Hirschsprung's disease); Graves on an acid in the stomach and a West Ireland fever; Jacob on ophthalmitis after typhus; R. Reid on oxygen in angina pectoris; M. Ryan on hydrocyanic acid in extreme dyspnea and Stokes on abdominal tumors, cephalic apoplexy, dropsy and apoplexy, and fatal constipation.

The last Irish journal described by Dr. Kirkpatrick is the only one which has survived to date, the *Dublin Journal of Medical Science*, which first appeared, March 1, 1832, as the *Dublin Journal of Medical and Chemical Science*. Its founder was Robert John Kane (1809-1890), a physician who never practiced, but who made some investigations on experimental pathology, and became a well-known chemist. In 1834, on receiving the professorship of natural philosophy in the Royal Dublin Society, Kane turned over his journal to Graves, Stokes and Porter, who also acquired the collaboration of Arthur Jacob, professor of anatomy in the Royal College of Surgeons. In 1836, the journal became the *Dublin Journal of Medical Science*, and in 1842, Graves, Stokes and Porter resigned in favor of John Hamilton and R. L. MacDonnell, the former of whom later became the editor of the *Canadian Medical Journal*. In 1845, Sir William Wilde became editor, published an index of the first twenty-eight volumes, and made the next volume a quarterly (1846). The first number of the latter opened with an exhaustive history of Irish medicine by Wilde, which was followed by his long series of biographies of medical worthies.

In 1849, Wilde turned over the editorship to John Moore Neligan, who was succeeded by George H.

Kidd (1861-1868) and James Little (1869), who made the *Journal* a monthly again (Jan. 1, 1872), associating himself thereafter with John William Moore, who succeeded him as editor. In 1875, the *Irish Hospital Gazette* was incorporated with the *Journal* and in July, 1907, Dr. T. Gillman Moorhead and Sir John Moore became associated as the present editors. "The *Journal*," Dr. Kirkpatrick concludes, "is the mouthpiece of Irish medicine—by it Irish medicine speaks to the world." His study of the medical periodicals of his country makes an interesting contribution to medical history, and the titles of some of the papers listed in his bibliographies will suggest how many things of value are to be found in these old records, and how little is really new under the sun.

INHERITED EFFECTS OF CHRONIC LEAD POISONING

Recently THE JOURNAL discussed the evidence for the belief that chronic lead poisoning, like alcoholism, may produce effects in parents which lead to deleterious consequences in their offspring.[1] A majority of these cases occurred in female lead workers, and it might be supposed that abortions, stillbirths and early deaths of infants in such persons were due as much to the toxic effect of lead during intra-uterine development as to an actual injury to the germ plasm. No lack of instances occurs, however, in which the father was subjected to plumbism, the mother being unaffected directly. The outcome is a history of varied misfortunes: sterility without impotency, stillbirths, and the early deaths of the offspring. Children which survive have been found to be particularly liable to various nervous affections.[2]

Cole and Bachhuber have demonstrated that the offspring of male rabbits poisoned by lead as well as of male fowls similarly poisoned are of distinctly lower vitality than the offspring of normal males. More recently, Weller[3] has made similar studies on guinea-pigs to ascertain whether deleterious effects are really exerted on the germ plasm in the male as well as on the procreative functions of the female, that is, whether blastophthoria occurs in chronic lead poisoning. The animals were mated, lead females with normal males, and lead males with normal females. In order to check the results as efficiently as possible, control matings were made of normal males with normal females under the same feeding and housing conditions as the lead-poisoned pigs, and for the same reason the normal females were bred alternately to lead males and to normal males. The dosage of lead was controlled by frequent weighings in order that the general nutrition should not be seriously impaired. Under comparable conditions of experiment in respect to numbers and environment, nine offspring of lead males died in the first week against two offspring of normal males dying in that time. Eight young of lead females were stillborn against three stillborn from normal females bred to normal males.

The outcome of this interesting investigation indicates that, in chronic lead poisoning in guinea-pigs, there is a definite blastophthoric effect which can best be demonstrated on the male germ plasm. This effect manifests itself in some instances by sterility without loss of sexual activity, by a reduction of 20 per cent. in the average birth weight, by an increased number of deaths in the first week of life, and by a retardation in development so that these pigs remain permanently underweight. The apparent recovery of the germ plasm some time after the administration of lead has been stopped indicates that the deleterious effect must be suffered especially by that portion of the germ plasm which is undergoing maturation, and not by that which is stored in the primary germinal epithelium. Final judgment on this point, however, must be withheld.

1. Far-Reaching Effects of Lead Poisoning, editorial, THE JOURNAL A. M. A., Feb. 20, 1915, p. 666.
2. Adami, J. G.: Predisposition and Immunity, Osler's Modern Medicine, 1907, i, 44.
3. Weller, C. V.: The Blastophthoric Effect of Chronic Lead Poisoning: Breeding Experiments, Preliminary Report, Proc. Soc. Exper. Biol. and Med., 1915, xii, 157.

SCURVY IN MOTHER AND FETUS

The relation between mother and fetus has been studied in many directions, but little attention has been paid to the effect of diets on the fetus. Holst and Frölich[1] produced scurvy in guinea-pigs by keeping them on a diet of oats and water for from ten to twenty-eight days. With this diet, Ingier[2] produced scurvy in pregnant guinea-pigs to determine what changes would occur in the fetus and whether light would be thrown on certain diseases in man, such as rickets and osteomalacia.

Ingier found that pregnant animals are sensitive to this restricted diet; of thirty-three, twelve had dead litters and many mothers died with dead fetuses in the uterus. Seventeen had their young during an early stage of the disease, and four in an advanced stage. Scorbutic changes were present in all of the fetuses, though in widely varying degrees. The young of mothers in which scurvy developed during the latter part of pregnancy were born alive, fully developed, and with only slight bone changes. The young of mothers with scurvy during the greater part of pregnancy were nearly always born dead and showed marked evidences of scurvy, consisting of diminished bone formation, hemorrhages in the bone marrow and fractures and even failure of bone to

1. Holst, A., and Frölich, T.: Ztschr. f. Hyg. u. Infectionskrankh., 1912, lxxii, 1.
2. Ingier, Alexandra: A Study of Barlow's Disease Experimentally Produced in Fetal and New-Born Guinea-Pigs, Jour. Exper. Med., 1915, xxi, 525.

form. Some of these changes were more pronounced in the skeleton of the mother than in the young, which would be expected since damage to the fetus is often less than to the mother. Goldmann[3] demonstrated that during pregnancy certain nutritious substances, as glycogen and fat, pass from the mother to the fetus. Since pregnant animals are affected more readily than nonpregnant animals by defective diet such as used in these experiments, it is probable that the fetus may absorb, as seen in the case of glycogen and fat, a large percentage of food substances necessary to prevent scurvy, with the result that the mother is less able to combat the disease.

Recently it has been suggested that some forms of scurvy are bacterial in origin; whatever the rôle bacteria may play, it has long been known that an unsuitable diet may lead to the development of the disease. In connection with this, Hess[4] has determined several new factors with respect to the lesions and signs of infantile scurvy and its relations to beriberi. Substances that prevent scurvy are present in vegetables and fresh fruit, but just what these are has not been determined. It is thought that they act either directly on the bone-forming elements or on the secretion of internal glands. Insufficiency of a gland of internal secretion in the mother may cause hypertrophy of the same gland in the fetus, for example, the thyroid, and Ingier added various preparations of internal glands which influence bone growth (hypophysis, thymus, parathyroid and thyroid) to the oats and water diet to see if the scurvy could be prevented; but the results were entirely negative. Defibrinated blood from normal guinea-pigs, which we may assume would contain secretions of all of the internal glands, was also without effect when given to animals with scurvy.

With a diet deficient in phosphates, Schmorl[5] produced a disease in dogs which resembles, but which probably is not, scurvy. Ingier added phosphated cod liver oil to the oats-water diet, but this did not check the development of scurvy or alter its course after it had developed, the result indicating that phosphates are not the substances essential for the prevention of scurvy.

The experiments here reviewed briefly do not speak for an etiologic relationship between scurvy and the congenital disease known as osteogenesis imperfecta. This disease, though due to a diminution of osseous development, differs essentially from scurvy and has not been produced by the feeding experiments. There are also fundamental differences between scurvy and rickets and osteomalacia. Scurvy and osteomalacia may occur in pregnancy, and exacerbations of existing osteomalacia may develop during pregnancy, but it is doubtful if the offspring of such mothers have the disease at birth. In these conditions, the fetus apparently through a selective action of the placenta is able to avoid the factors that are injurious to the mother. Disturbance of ductless gland secretion seems to play a rôle here; in osteomalacia the parathyroids seem to be concerned.

In conclusion it may be said that, while Ingier did not succeed in finding the specific substances necessary to prevent scurvy, she did succeed in transmitting the disease from mother to offspring.

3. Goldmann, cited by B. Wolf, in von Meyer and Schwalbe: Studien zur Pathologie der Entwicklung, Jena, 1915, i, 50.
4. Hess, A. F.: Infantile Scurvy, II, A New Aspect of the Symptomatology, Pathology and Diet, The Journal A. M. A., this issue, p. 1003.
5. Schmorl, G.: Arch. f. exper. Path. u. Pharmakol., 1913, lxxiii, 313.

IS STRYCHNIN A "CARDIAC TONIC"?

Clinical evidence sometimes endows drugs with diverse and unexpected properties. In some degree this seems to have been the case with strychnin. Many physicians administer this drug in cardiac emergency, although the pharmacologists have not been able to demonstrate that it increases the output of the heart. It is occasionally true that benefits follow the empiric use of drugs in some cases, although the therapeutic attempt is useless in the majority of them. Doubtless for this reason there is a considerable degree of reserve in the textbooks of pharmacology in condemning any presumably useless practice that has been widespread. Thus, some books state that no essential increase in blood pressure follows the experimental administration of nontoxic doses of strychnin, but admit that, in pathologic conditions attended with abnormally low pressures, beneficial results may possibly follow. The alleged value of strychnin in surgical "shock" has no experimental basis to support it and is, indeed, denied by many competent observers. It is a fact readily demonstrated on animals that cardiac muscle is not only not stimulated, but also decidedly depressed both in amplitude and in rhythm under the influence of strychnin, Greene[1] sums up the situation when he says that the beneficial effects of strychnin on the circulatory system which have been claimed in therapeutic practice must rest wholly on the changes in the reaction delicacy through the central nervous mechanisms. By an increase in the irritability of the cardiac inhibitory and acceleratory centers, normal stimuli may produce more profound and beneficial changes in the musculature of the cardiac apparatus. It must be remembered, however, that even this favorable response to strychnin is somewhat antagonized by the depression of the cardiac muscle tissues.

Inasmuch as the laboratory studies of the action of strychnin show that doses permissible in man can scarcely be of direct use in the treatment of heart disease, the use of the drug as a "cardiac tonic" must be defended, if at all, on the basis of some indirect effect. In the series of articles on practical pharmacology in The Journal,[2] it has been attempted in a mild way to

1. Greene, C. W.: Handbook of Pharmacology, 1914, p. 101.
2. Practical Pharmacology, special article, The Journal A. M. A., Jan. 16, 1915, p. 245.

make allowance for the undemonstrated reputed usefulness of the drug by stating that strychnin may slow the heart through vagus stimulation at times; it may improve the circulation through its actions on the vasomotor and respiratory centers — for one cannot wholly separate the influence of the respiration and circulation — and thus through the circulatory changes it may improve the nutrition of the heart. In a similar way it causes improvement in the voluntary muscles and other tissues of the body when it improves the circulation by increasing muscular activity.

In a review of the facts gathered by clinical observers on this subject, Newburgh[3] quotes evidence which shows that, even though a single dose of strychnin does not benefit persons suffering from heart failure, it is not proved that the prolonged use of the drug may not be a material aid in the relief of broken cardiac compensation. At the Massachusetts General Hospital in Boston, he investigated the possible effect of the administration of large doses of strychnin over a period of several days in persons suffering from chronic heart failure.[4] None of the patients were benefited by the strychnin. The compensation was not improved in the slightest by the drug, but some of the patients subsequently recovered their compensation as the result of digitalis administration. The failure of strychnin to have its reputed effect, therefore, cannot be explained by assuming that the patients under observation were beyond all therapeutic aid. Those who improved under digitalis failed to do so during the strychnin period solely because strychnin does not improve the heart. Newburgh concludes that neither pharmacologic nor clinical evidence justifies the use of strychnin in the treatment of acute or chronic heart failure.

POTASSIUM POISONING IN NEPHRITIS

It has long been known that potassium salts (or, speaking more correctly, potassium ions) have a depressant action on the heart; the demonstration of this has become a commonplace experiment in the pharmacologic laboratory. This poisonous action was first investigated in connection with the frog heart, but has been repeatedly confirmed for the mammalian heart. Just how toxic a potassium salt is for the mammalian heart can be shown only by experiments on the isolated organ; for when such salt is administered by mouth or even intravenously at a slow rate, it is, under ordinary circumstances, removed so rapidly from the circulating blood that unless enormous doses are given, the concentration which would be fatal or markedly toxic to the heart is not reached. With the isolated mammalian heart, however, it has been shown[5] that when the circulating fluid contains 0.085 per cent. of potassium chlorid, the heart rate may be reduced by one third; 0.14 per cent. brings the heart to a standstill. On the basis of the figures given for the total quantity of blood — from 5 to 7 per cent. of the body weight — a man of 70 kg. (about 178 pounds) would contain in the neighborhood of 4,000 c.c. To bring such a volume of blood to a potassium chlorid content of 0.14 per cent., it would be necessary to add only 5.6 gm. of potassium chlorid, or somewhat less, for the blood normally contains some of this salt. In other words, 5 or 6 gm. of potassium chlorid reaching the blood and remaining there would very quickly be fatal.

Bunge long ago called attention to the fact that men partaking largely of a diet of certain vegetables (especially potatoes) may daily absorb 40 or more (even 70) gm. of potassium salts daily; in other words, they may take ten or more times a fatal dose of potassium salts every day. Yet no untoward symptoms have been reported; the explanation is that although the potassium salts reach the blood and so the heart, they are removed from the blood so rapidly that they do not reach the dangerous concentration. It has long been recognized that it is largely through the activity of the kidneys that potassium salts are removed from the body.

In view of these facts it is not surprising that potassium chlorid should prove much more toxic to animals or men with impaired kidney function than to normal individuals. That this is actually the case has been shown by Smillie,[6] who produced nephritis in rabbits by the injection of small doses of uranium nitrate; such rabbits succumbed quickly (often within fifteen minutes) to doses of potassium chlorid three or four times smaller than those which were borne without any symptoms by normal rabbits. The experiments were controlled by nonprotein blood nitrogen retention determinations; the potassium chlorid was excreted, and no symptoms appeared until the nonprotein blood nitrogen had risen to about 100 mg. per hundred c.c., whereas beyond this figure death was quickly produced.

Smillie's experiments were suggested by a case of what seemed to be potassium chlorid poisoning in a nephritic. A woman of 43 with chronic interstitial nephritis and hypertrophy of the heart and showing a poor sodium chlorid excretion took 10 gm. of potassium chlorid; she became cyanotic and markedly depressed, and there were abdominal distress and vomiting, diminution of urine, and two days later marked hemoglobinuria; the latter condition does not seem to have been observed in animal experiments.

These observations help to define more exactly the dangers of potassium, concerning which such unwarranted fears have at times been expressed. They suggest that the large amounts of potassium salts present

3. Newburgh, L. H.: On the Use of Strychnin in Broken Cardiac Compensation, Am. Jour. Med. Sc., 1915, cxlix, 696.

4. This is one of the investigations aided by a grant from the Council on Pharmacy and Chemistry of the American Medical Association.

5. Hald, Tetens: Arch. f. exper. Path. u. Pharmakol., 1905, liii, 227.

6. Smillie, W. G.: Potassium Poisoning in Nephritis, Arch. Int. Med., August, 1915, p. 330.

in some vegetable foods might be dangerous in nephritis. They also serve as a warning against methods of administering drugs which might suddenly raise the potassium content of the blood. In these days, when the intravenous and subdural routes for the administration of powerful drugs are being more and more used, such a word of warning may not be amiss; potassium salts injected as some sodium salts have been might well prove extremely dangerous. As regards the relation of potassium salts to nephritis, it is interesting to recall that this is an old problem in a new form; in the early eighties of the last century the question was much discussed.

TUBERCULOSIS AND IMMUNITY

So much attention has been paid in recent years to the study of tuberculosis, not only from the standpoint of medical science, but also with reference to sociologic and industrial aspects of the widespread prevalence of this disease, that many thoughtful persons are beginning to take a retrospect of the situation. What has been learned? What has been accomplished? What is worth while in our plans for the future of the work? These are questions which deserve careful consideration. Like other fields of medicine, the problems of tuberculosis need to be approached from many sides. A single avenue of investigation is often quite misleading because, despite what it may reveal, it fails to open up the by-ways that lead to important information. Tuberculosis deserves to be considered in its racial and epidemiologic aspects as well as from the pathologist's point of view. Too often, as Baldwin[1] recently remarked in his Harvey Lecture, we encounter confusion and perplexity in the face of the frequent contradictions experienced in tuberculosis from the clinical side. The deceptions and fallacies of laboratory experiments in some instances have also led us astray.

The retrospect of this difficult field by one who has devoted years of patient endeavor to it, as has the assistant director of the Saranac Laboratory for the Study of Tuberculosis,[1] furnishes a helpful guide for the continuance of the campaign against the disease. It indicates the directions in which progress may be attempted and sets the probable limitations to present-day aims and procedures. Some of Baldwin's dicta deserve to be disseminated widely. We know, he remarks, so far as tuberculosis is concerned, that in man no absolute immunity has been observed, meaning by this, effective resistance throughout life. There may be a relative immunity or a heightened resistance, but not a natural immunity to tuberculosis in warm-blooded animals. All civilized races long removed from infection are particularly susceptible. Some of the white races have acquired a certain degree of immunity by inheritance and almost universal infection. Baldwin reminds us that the rapid increase of intercourse between all lands and races facilitates the universal spread of tuberculosis; and it is certain to occur through the medium of numerous bacillus "carriers" in this, as in so many other diseases.

There is no evidence of an experimental nature to show that any form of *active* immunity is transmissible. The variability in resistance exhibited by man must be associated with other factors. The gradual processes of immunization believed by many to be taking place in white races must be resolved into other causes. If progress is being made toward the self-protection of mankind, the resistance attained or presumably attainable must not be confused with the claim that a specific resistant quality is transmitted. No specific natural defenses have been demonstrated.

The outlook as it appeals to Baldwin is not discouraging. The ultimate survival of those who acquire a relative immunity, he writes, will tend to diminish the severity of the disease, but many generations may be required to accomplish this. He believes that the opportunities for infection, now universal in cities, will gradually diminish in civilized lands by lessening the danger from advanced cases and also that from bovine sources. For many years, however, the number of "carriers" will increase, owing to improved care, longer life, and higher standards of living among the people.

One reason for the considerable variation in resistance in some species is the fact that the bacillus has not become adapted to long-continued parasitic existence in them. "Given virgin soil and a race of bacilli already adapted to the species, an initial infection takes place with little hindrance from the nonspecific defensive powers. The further history of such infections depends, in part, at least, upon the amount of specific resistance aroused."[1] In the absence of specific natural defenses, it is well to remember that maturity of tissues, freedom from trauma, normal nutrition, and the absence of intercurrent disease or toxic influences are the important "factors of safety" on the part of the body. In the therapy of tuberculosis, says Baldwin, this principle should be applied: To avoid interference with Nature's powers of resistance when she is attempting to localize the infection with apparent success.

1. Baldwin, E. R.: Immunity in Tuberculosis: with Special Reference to Racial and Clinical Manifestations, Am. Jour. Med. Sc., 1915, cxlix, 822.

Good Breeding and Acquired Characters.—Even if we must believe that acquired characters are not transmissible, there is still no ground to be despondent on the subject, nor to be unduly elated. It is no argument against the necessity of doing our very utmost in the training and education of the race, and of improving the conditions of life to counteract bad breeding. Without the opportunities which health and education give, even an inborn good quality may never have the chance of asserting itself. But we must learn to value good breeding more than we do.—**F. M. Sandwith,** *Clinical Journal.*

Current Comment

MEDICAL LICENSURE

The responsibility for the licensing of medical practitioners has been left by the national government to the individual states; it is left to the state to establish the only legal barrier possible between the public and the thousands who seek authority to treat human diseases. Some states have provided an efficient guaranty that practitioners given the state's endorsement have secured the essential educational qualifications. In some states, however, the responsibility has been taken up in such a happy-go-lucky manner, and the legislation provided is so contrary to effective legal procedure, that the situation would be laughable, were it not for the serious menace to the public. In some states, laws have been passed, admirable in their composition and excellent in their purpose, only to be invalidated by clauses or by other laws exempting the very persons to whom the law should apply. Invariably, the exemptions are of those unable to comply with the educational requirements of the practice act and against whom the people most need protection — those who have had little or no medical training. The making of such exemptions, either by special clauses in the practice act or by laws providing special boards and lower educational standards, is clearly perverting medical licensure, so that instead of protecting the public against the incompetent, it is providing special privileges for the incompetent, untrained men and women parading as the apostles of some "new and marvelous" form of healing. Legislators have yet to learn that the art of healing is not gained by birth or by inspiration, but by a rigid and prolonged course of training in the fundamentals of medicine. The only way to make medical licensure a real protection of the public is to provide one licensing board in each state with ample power to apply one educational standard alike to all practitioners of the healing art.

ALKALOSIS AS A POSSIBLE PATHOLOGIC FACTOR

At the present time acidosis is being charged with a rather heavy burden of responsibility for all sorts of pathologic manifestations. Sometimes these are attributed to the toxicity of abnormally liberated acid products of metabolism; sometimes it is an upset in the acid-base equilibrium of the organism that is held accountable for the perversions of function noted. It is, of course, easily conceivable that bases should now and then accumulate in undesirable quantities somewhere in the organism and thus initiate undesirable symptoms. Indeed, this possibility becomes more and more significant as the importance of the neutrality regulation of the blood and the body is being emphasized. The possible participation of what may be called alkalosis, by contrast with the reverse condition of acidosis, has been suggested in explanation of the symptoms of parathyroid tetany.[1] The origin of the peculiar muscular manifestations which follow the loss of the parathyroid glands has long been a scientific puzzle. Theories, of course, have not been wanting. It has been assumed, for example, that ordinarily these glands have a detoxicating function. When they are removed, poisons, of either metabolic or exogenous origin, are no longer neutralized, destroyed or prevented from being formed; hence the symptoms that arise. It has also been advocated that parathyroid tetany is the expression of a nervous hyperexcitability due to deficiency of calcium. Injections of calcium salts bring temporary relief; but other procedures quite unrelated to the calcium element do likewise. The toxin theory has become a veritable tangle of conflicting claims and observations. At the Johns Hopkins University, Wilson, Stearns and Janney[1] have found that the introduction of acids into animals relieves parathyroid tetany and that the period of relief is more prolonged than that observed after the introduction of many other of the agents previously tried. This is an experimental fact. The assumption derived from it is that the symptoms are themselves the expression of an alkalosis. This possibility has heretofore received no attention. It is supported by the further fact that alkalies are known to increase the symptoms of tetany. Sodium bicarbonate has been shown to be distinctly harmful, whereas the neutral chlorid of sodium is innocuous. From this it appears that an artificial alkalosis is unusually harmful, while a condition of acidosis produced by acid introduction is beneficial in parathyroid tetany. Even the acidosis developed by prolonged fasting tends to diminish the severity of the symptoms. The investigators quoted point out that the relief of parathyroid tetany by the administration of acids suggests the possibility of a beneficial action due to a variation in the acid-base equilibriums in the body, and offers a new point of view for the study of this and allied conditions.

1. Wilson, D. W.; Stearns, T., and Janney, Jr., J. H.: The Effect of Acid Administration on Parathyroid Tetany, Jour. Biol. Chem., 1915, xxi, 169.

OSTEOPATHS AND THE HARRISON LAW

The Harrison Narcotic Law has now been in force six months, and some of its by-products are becoming apparent. One of the unexpected developments is the attitude of the osteopaths toward the law. Osteopathy, as is generally known, originated in the dreams of a country doctor in Missouri, about a quarter of a century ago. It is based, according to its founder and prophet, on the following propositions: The human body is a machine; disease is due to the dislocation of some structure in the body; the treatment of any abnormal condition is to find the dislocated structure and restore it to its proper position. None of the statements is true as a generalization, yet each one has in it a grain of truth, just enough to enable the ignorant and enthusiastic disciple to make out a case to a receptive listener. But the real reason for the temporary vogue of osteopathy is the accidental fact that this cult arose just at the time when the advance of scientific knowledge regarding disease was demonstrating the falsity of many of our previous ideas regarding drugs and their value. The public,

catching this spirit from the medical profession, began to waver in its allegiance to powders and pills, and so was psychologically receptive to the claim of the osteopath that his "system" was a drugless one, that drugs were not only of no value in the treatment of disease, but also were responsible for most of human ills. In addition to osteopathy, a countless succession of other freak sects made capital out of this "drugless healing" cry. In each state the advocates of osteopathy appeared before the legislature and demanded the passage of a law which would "recognize osteopathy" as a drugless system of treatment, something entirely apart and distinct from the practice of medicine. This was the basis on which they were given separate laws, boards and standards, and this is the only ground on which they could be so recognized. The Harrison law provides for the registration of physicians, as a means of restricting the use of certain drugs to legitimate purposes. In several states the osteopath has demanded the right to register under this law, regulating the use of drugs which, according to his own teachings, he never uses and does not believe in. "For," he says, "am I not a physician with all the rights and privileges of one?" To the ordinary mind, it would seem clear that the osteopath either is or is not a physician. If he is, then he is subject to the provisions of the Medical Practice Act, and should be required to conform to its educational requirements. If he is not, then he is not qualified to register as a physician or to perform any of the legal functions of a physician, least of all the dispensing or prescribing of powerful drugs, the use of which is directly opposed to osteopathic teachings.

ABSORPTION FROM THE STOMACH

Although one might expect, from purely gross anatomic considerations, that the stomach is an organ of absorption precisely like the intestine, which forms a continuance of its structure, physiologic evidence fails to support such a view. Even water is retained without absorption in the stomach when something interferes with the passage of fluid further along the gastrointestinal canal. Alcohol, however, can find its way quite readily through the barrier of the gastric membranes, and it is possible that some substances soluble in alcohol can reach the blood stream in company with this substance, yet fail of ready gastric absorption when present in a watery solution. It may be that the experimental findings heretofore reported are in part dependent on the conditions of investigation which have prevailed. For example, it has been stated that almost all of the amino-acids—easily absorbed substances—which are administered by mouth can be recovered from a duodenal fistula, thus indicating that they traverse the stomach without being absorbed.[1] Apparently contradictory to this is the statement that, after ligation of the pylorus, evidences of amino-acid absorption from the stomach may be obtained. Perhaps the variance here expressed is merely an indication that under exceptional conditions, such as prolonged stay in the stomach, substances which would ordinarily be passed along the alimentary tract to the intestine find their way through the gastric wall in the course of unusual detention in contact with it. If soluble substances are, at best, absorbed through the stomach wall with slowness and difficulty, there is little likelihood that the less soluble foodstuffs, such as fats, can reach the circulation in this way. A number of investigators have recently published observations of a histologic character from which they conclude that ingested fat does pass through the stomach wall. Mendel and Baumann[2] have tested this contention in a variety of ways, notably by examining the blood and the thoracic lymph for evidences of absorbed fat when the latter substance was introduced into the ligated stomach. When the pylorus is patent, the fat content of the blood soon increases in notable amount after a meal rich in fat. So long as no fat reaches the intestinal membrane, however, the Yale investigators contend that the absorption and transport of fat through the gastric wall are apparently nil or exceedingly slow and small in amount; for, with methods that are reasonably delicate, no detectable quantities of fat could be shown to be absorbed by way either of the blood or of the lymph streams. Absorption is not a primary or prominent function of the stomach.

1. Abderhalden, London and Prym: Ztschr. f. physiol. Chem., 1907, liii, 326.

THE PHOSPHORUS CONTENT OF BLOOD SERUM

Thanks to the development of suitable analytic procedures, particularly the so-called micro methods which enable one to make quantitative estimations with small amounts of blood such as can readily be withdrawn from any patient with ease, the chemistry of the blood serum has attained a clinical significance in a new sense. The readers of THE JOURNAL have become familiar with the statements based on the quantitative determination of sugar and of various types of nonprotein nitrogen in the blood. Figures obtained for the content of uric acid and urea in the circulating blood are used as diagnostic aids; for example, to determine whether a case of joint disease is gout or arthritis.[3] Compounds other than those containing nitrogen have become included in the list of the readily estimated blood constituents. Cholesterol, for example, has attracted attention, particularly in its possible relation to phenomena of hemolysis. More recently, the soluble phosphorus compounds of the serum have received attention. At the Harriman Research Laboratory of the Roosevelt Hospital, New York, Greenwald[4] has shown that these may be divided into three classes: (1) lipoid, (2) forms probably inorganic in nature, and (3) protein-phosphorus derivatives. The last are present only in small quantities in the blood, and are presumably negligible in amount in the serum. The amount of lipoid phosphorus, though varying

2. Mendel, L. B., and Baumann, E. J.: The Question of Fat Absorption from the Mammalian Stomach, Jour. Biol. Chem., 1915, xxii, 165.
3. Folin, Otto, and Denis, Willey: The Diagnostic Value of Uric Acid Determinations in Blood, Arch. Int. Med., July, 1915, p. 33.
4. Greenwald, I.: The Estimation of Lipoid and Acid-Soluble Phosphorus in Small Amounts of Serum, Jour. Biol. Chem., 1915, xxi, 27.

widely in different normal individuals, is comparatively constant for the same person. It does not appear to be increased during the absorption of fats which are commonly accompanied by lipoids. The inorganic type of phosphorus compounds, on the other hand, is doubtless largely dependent on the character of the diet and the stage of digestion after meals. In amount it varies in normal individuals between 2 and 6 mg. per hundred c.c. of serum, the content of the lipoid phosphorus ranging from 7 to 13 mg. for the same group of persons. In nephritis, on the other hand, in which the retention of nonprotein nitrogen has been demonstrated again and again, there is evidence, in the newest data from the Harriman Laboratory, of retention likewise of inorganic phosphate, and also, in some cases, a certain increase in the amount of lipoid phosphorus in the serum. They do not always parallel each other.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALASKA

Correction.—An error occurred in a news item from Alaska, on page 630 of THE JOURNAL of August 13. It should read that Dr. Earle M. Bevis, Juneau, has been appointed assistant commissioner of health for the First Judicial District of Alaska, and Drs. Harry C. DeVigne, Juneau, and Benjamin L. Myers, Ketchikan, have been appointed members of the Alaska Board of Medical Examiners from the same district. ——The address of Dr. Curtis W. Welch is Candle and not Council, as erroneously stated.

CALIFORNIA

Japanese Leper Discovered.—Members of the Sacramento Board of Health took into custody, on August 24, a Japanese who is suffering from tubercular leprosy. He is detained at the Sacramento County Hospital.

Jury Reduces Fees.—The claim of $25,000 presented by Dr. Herman J. Schlageter of San Francisco, against the estate of the late Mr. Charles G. Lathrop, San Jose, was reduced to $10,000, by the jury, August 27. The claim was for medical service rendered for two years preceding the death of Mr. Lathrop and the opinion of experts as to a reasonable charge for services rendered varied from $10,000 to $50,000.

Personal.—Dr. J. P. Jackson, Los Angeles, is reported to be seriously ill at his old home in Muscatine, on account of an infection of the right hand.——Dr. Harold Kniest Faber, formerly connected with the Rockefeller Institute for Medical Research, New York, has been appointed assistant professor of pediatrics in the Leland Stanford Junior University, School of Medicine, San Francisco.——Dr. F. W. Lynch, assistant professor of obstetrics and gynecology at Rush Medical School, has accepted a call to become professor of obstetrics and gynecology in the University of California Medical School, as successor to Prof. J. M. Slemons, who has resigned to accept a call to Yale Medical School.——Dr. Wilbur A. Sawyer has been appointed member and secretary of the California State Board of Health. For the past five years he has been director of the state hygiene laboratory at the University of California and recently also lecturer in hygiene and preventive medicine in the University of California Medical School. As secretary of the California State Board of Health he will have charge of the bureaus of administration, tuberculosis, vital statistics, and registration of nurses, maintained at the state capitol, Sacramento; and of the bureau of food and drugs, the state hygienic laboratory, and the newly established bureau of sanitary engineering, maintained by the state at the University of California. Among his developments of the work of the state hygienic laboratory have been the making and distribution of Pasteur antirabic virus, and of an improved serum for immunization against typhoid, prepared in accordance with the Gay-Claypole method, and the establishment of a department for Wassermann and other tests for specific diseases. Dr. Sawyer was chairman of a committee of the University of California faculty which last year brought about the establishment of a six-year course in preventive medicine leading to the degree of Graduate in Public Health.

COLORADO

Sanitary Rules for the Home.—Dr. Frank R. Coffman, City Health Commissioner of Denver, has issued a set of instructions for housewives regarding home sanitation.

To Abolish Police Surgeon.—The commissioner of safety of Denver announced at a conference of city commissioners that at the next regular meeting of the council, he would introduce an ordinance to abolish the office of police surgeon.

Personal.—Dr. William W. Kenney, Denver, is reported to be critically ill as the result of poison taken by mistake. ——Dr. Lloyd E. Kindall, Pueblo, has been elected as surgeon-superintendent of the Lincoln County Miners' Hospital, Sheridan, Wyo.——Dr. Luther J. Weldon, city physician of Denver, has resigned.

FLORIDA

Physicians at Small Salaries Wanted.—The mayor of Jacksonville, in a report made to the city council, August 21, stated that the city was now too large for one city physician and suggested that at least three be employed, two white and one colored.

Personal.—Drs. James E. Douglass and Willie J. Vinson, Tarpon Springs, have been appointed local surgeons for the Tampa and Gulf Coast Railway.——Dr. Sarah Lucretia Robb, Gainesville, who has been ill in St. Luke's Hospital, Jacksonville, is reported to be convalescent.

Instruction for Midwives.—A course of instruction for midwives was given by the city health department, beginning August 4. After the course of instruction is over an examination is to be held and permits to practice will be issued to those who pass the examination.

Enforcement of Health Laws Demanded.—The state health officer has addressed a letter to solicitors of the circuit of county criminal courts, to sheriffs and county superintendents of public instruction, directing attention to the passage of the public health laws enacted by the legislature of 1915, with especial reference to the provision of adequate sanitary privies and the screening against flies.

Regulations for School Inspection.—At a called meeting of the state board of health, August 30, rules and regulations regarding the work of medical inspectors of public schools in the state were adopted. The purpose of the meeting was to agree on the best means to enforce the act without burdening the state board with the great additional expense involved, and for which no provision was made by the legislature.

Hospital Notes.—The Pensacola Hospital, which has been erected by the Sisters of Charity at a cost of $400,000, was opened for public inspection, August 27, and received its first patients on September 1. The hospital scheme was initiated about a year and a half ago. The building is of stone, brick and reenforced concrete construction, four and five stories in height, is as nearly fireproof as is possible and has a thoroughly modern equipment.——The nurses home for the Gordon Keller Memorial Hospital, Tampa, has been completed at a cost of $8,000, and will be occupied as soon as means can be obtained for equipping the building.——The property on East Rich Avenue, De Land, occupied by the De Land Hospital, has been sold to a resident of Tarentum, Pa., who expects to occupy the building as a winter home.——Plans for a new hospital building and a building for colored students, at the State School for the Deaf and Blind, St. Augustine, have been accepted by the State Board of Control, and contracts for about $30,000 for the construction of this new building have been let.

ILLINOIS

Foot and Mouth Disease.—On September 8, Governor Dunne issued a proclamation urging that no picnics or political or social gatherings be held in rural communities or country towns within a radius of 25 miles of farms now under quarantine for foot and mouth disease.——It is alleged by the Department of Agriculture that the disease has been carried by pigeons from farm to farm in quarantined parts of the state, and that it has also been spread by the common custom of boarding neighbors' cattle.——Augusta and St. Mary's townships in Hancock County and Birmingham township in Schuyler County have been added to the quarantined district.——The disease has broken out in the prize Guernsey herd of cattle belonging to Mrs. Scott Durand at Crabtree Farm, near Lake Bluff, and sixty-one head, valued at $61,000, have been ordered killed.

Chicago

Personal.—Dr. James W. Walker is in charge of a voluntary aid detachment hospital for wounded soldiers in Kent, England.

INDIANA

Sanatorium Company Dissolves.—Announcement is made by the Secretary of State that the Frankfort Tuberculosis Association, Frankfort, has dissolved.

Sanitary Survey.—Drs. H. F. Smith and J. Craven of the U. S. P. H. S. have recently reached Indianapolis in the course of a sanitary survey of the Ohio Valley water shed, the survey being made with especial reference to typhoid fever.

Loan to Board of Health.—A temporary loan of $72,000 for the city health department of Indianapolis, to be devoted to health board and recreation work, has been negotiated by the city controller. The loan is for three months and the rate of interest, 3 per cent. and 5 per cent.

Physicians Combine.—Drs. Simon J. Young, Gerald H. Stoner, Harry B. Hayward, Edgar H. Powell, George R. Douglas and Robley D. Blount, all of Valparaiso, have associated themselves together and have rented the remodeled second floor of the Bondy Building as offices.

Disease Prevention Day.—Governor Ralston has issued a proclamation designating Friday, October 1, as Disease Prevention Day and urges that on this day such exercises be given in the public schools, and such action be taken by the various municipalities and civil and other organizations as will emphasize the joint responsibility of all citizens thereof.

Personal.—Dr. Ira W. Ellis, Newcastle, who fell a short time ago fracturing his hip, is reported to be in a critical condition.——Dr. John B. Weaver, after fifty-seven years of active practice in Mt. Vernon and Evansville, has retired from active practice and will reside with his son in Nashville, Tenn.——Dr. Theodore B. Templin, city physician of Gary, is reported to be seriously ill in Mercy Hospital with appendicitis.——Dr. Joshua Simon, Rome City, fractured his right forearm August 9, while cranking his automobile.

IOWA

Doctors' Building for Clinton.—Drs. David S. Fairchild, Sr. and Jr., Dr. Henry J. Heusinkveld, Jr., and other physicians of Clinton, expect to have joint offices in the new Wilson Building, which is to be arranged especially for physicians' uses.

Personal.—Dr. William A. Guild has just returned to Des Moines after a year in Paris.——Dr. Claud E. Aborn, Clinton, suffered a fracture of the leg in a collision between an automobile and an interurban car at Sterling, Ill., August 21.——Dr. John E. Luckey, Vinton, was thrown through the windshield of his automobile in a collision with another car, August 19, and sustained severe cuts and bruises.——Dr. Charles H. Cogswell, Cedar Rapids, for nearly fifty years a practitioner of medicine, celebrated his semicentennial as a Free Mason, August 14, and on this occasion was presented with a gold headed cane.

Vaccination.—Davenport had an epidemic of smallpox lasting many months, which is practically just ended. On the opening of the public schools September 1 more than fifty children were excluded on account of noncompliance with the rule of the health department that they must be satisfactorily vaccinated before entering the schools. Over 7,000 pupils registered, 1,200 of whom were enrolled in the high school. The parochial schools also have several thousand pupils. Some opposition to the vaccination rule was manifested, some parents declaring that they would take the matter to the courts, in the face of the expensive epidemic of smallpox which the city had just gone through. Dr. Joseph R. Ferrell, school physician, has issued a notice to the public school patrons that vaccination will be done free.

KENTUCKY

Inspection of Clinics.—Surg. John McMullen, U. S. P. H. S., Lexington, has recently made a tour of inspection of mountain clinics and hospitals where trachoma and other communicable diseases are being treated. Dr. McMullen has been requested to establish a clinic for trachoma in Bell County.

County Health Survey.—A health survey of Bell County has demonstrated that in less than one third of the schools, fifty-one cases of trachoma exist among the schoolchildren. In the schools thus far examined, there have also been twenty-five cases of tuberculosis and thirty cases of pellagra.——As the result of an investigation made in twenty-four counties of the state, 1,280 cases of trachoma have been found in 18,016 individuals examined.

Dustless Streets and Health.—Louisville has been making an experiment in oiling its macadam streets with the idea that the absence of dust from such streets not only conduces to the comfort and cleanliness of the homes thereon, but that there would be a distinct gain in the general health from the absence of dust and the germs of disease carried thereby. In proof that keeping down dust has had some effect in this direction, it is said that during July there was not a case of diphtheria or scarlet fever reported, whereas during May and June, before the oiling was commenced, there were thirty-three cases of these two diseases.

Personal.—Dr. Charles H. Todd, Owensboro, was the guest of honor at a banquet given by physicians of Owensboro and Daviess County in celebration of the semicentennial of Dr. Todd's advent in Owensboro.——Dr. N. Lewis Bosworth, Lexington, has been elected medical director of the Central Life Insurance Company.—Dr. Thomas H. Kelly, Covington, has been appointed assistant to the Forschheimer chair of internal medicine of the University of Ohio, Cincinnati.——Dr. Louis Kaelin, Louisville, who has been seriously ill with rheumatism for several weeks, is reported to be improving.

Hospital Notes.—At the November election, the voters of McCracken County will decide whether or not the Jackson Hill Sanatorium shall be conducted as a county institution.——Dr. Harvey R. Henry, Winchester, has leased the Birch Building in Winchester and after remodeling it will open it as a private hospital.—The contracts for building the additional room at Bethany Hospital, Winchester, have been awarded and on the completion of this work there will be room for twelve patients in the institution.——At a meeting of the Paris Commercial Club, August 13, it was decided to raise funds for the building of an annex, for the use of colored patients, to the Massie Hospital.——Dr. Wilgus Bach, Jackson, is building a three-story modern hospital, to be completed about September 15, and to accommodate about forty patients.

July Work of the Tuberculosis Commission.—During July, the state tuberculosis commission gave its moving picture exhibit in Campbell County and as a result of the interest, the county commissioners are considering the feasibility of uniting with Kenton County in building a tuberculosis hospital. Nurses representing the commission have worked in Breckenridge, Bell, Union, Menifee and Boyle counties. One nurse has spent two weeks in interesting physicians, clergymen, teachers and public officials in Floyd, Lawrence, Johnson and Pike counties, in the establishment of visiting nurses work for consumptives. The county superintendent of schools of Mason County represented the commission before ten teachers' institutes, at which she showed the need of improving sanitation and of the employment of visiting nurses for schools as a means of preventing tuberculosis.

LOUISIANA

Awards Tulane.—A bronze medal has been awarded to the museum of anatomy of Tulane University, and Dr. Edmond Souchon, New Orleans, for their exhibit on Dissections.

Site for Sanatorium Purchased.—The state board of health has purchased 623 acres of land about 10 miles south of Alexandria. The land will be cleared as soon as possible and buildings will be erected for a state sanatorium for tuberculosis.

Physicians Occupational Tax Opposed.—The Louisiana State Medical Association is urging the abolition of the occupational tax on physicians and is advising members of affiliated medical societies to nominate and elect, if possible, candidates who will pledge themselves to vote for the abolition of the license tax on physicians.

Seeks Site for North Louisiana Pellagra Hospital.—Dr. Oscar Dowling, state health officer, is touring north Louisiana that he may determine the number and location of cases of pellagra in that portion of the state, take steps for treating the disease and establish such hospitals as may be deemed necessary. It is estimated that there are more than 3,600 cases of pellagra in Louisiana.

Personal.—Dr. George H. Tichenor, Jr., New Orleans, has been appointed surgeon in chief on the staff of the Commander in Chief of the Sons of Confederate Veterans.——Dr. Henry B. White, New Orleans, resigned as a member of the state board of health and has assumed his duties as medical inspector of the board.——Dr. Mayer A. Newhauser, New Orleans, for several years field agent of the state board of health, has resigned.——Dr. Willoughby E. Kittridge has been elected a member of the Napoleonville Board of Health.——At the trial of Dr. E. Otis Edgerton, Crichton, charged with shooting and killing Mrs. J. W. Lang, the grand jury returned a verdict of "no true bill."

MARYLAND

Typhus at Bay View.—Dr. Nathan R. Gorter, Baltimore, Commissioner of Health, is investigating the circumstances which caused the failure of the authorities at Bay View and the attending physician to report a case of typhus fever to the health department.

Strike in Hospital.—A series of internal dissensions between the management of the Maryland General Hospital and the general staff, which commenced with a hunger strike, ended in the resignation of a body of the resident staff to take effect in the near future unless the matters in dispute are adjusted before a definite date.

Personal.—Dr. Samuel D. Shannon has been appointed chief of the resident staff of the Maryland General Hospital, succeeding Dr. William B. Blanchard, resigned.——Dr. Herbert C. Blake, Baltimore, was operated on for the removal of tonsils and adenoids, at the Maryland General Hospital, August 28.——Dr. Clarence E. Downes, health warden for the eleventh ward of Baltimore, resigned, to take effect September 1, to accept a position in the U. S. P. H. S.

New House Staff at Johns Hopkins.—A substantial innovation has been made with the formation of an independent staff for the private wards, medical. Dr. Clyde G. Guthrie, assistant to Dr. Paul W. Clough, resident physician, has been made private ward resident, with Dr. F. Janney Smith and Dr. John H. King as assistant residents. Drs. Nathaniel H. Brush and Ernest S. Dubray are also assigned under Dr. Guthrie. This new arrangement allows the private wards staff to give their whole time to private ward cases and also allows the men assigned to the public wards to give their full time to the wards.

MASSACHUSETTS

Presentation of Bust of S. Weir Mitchell.—Mr. and Mrs. Walter D. Ladd have presented to the Jesup Memorial Library, in Bar Harbor, a bronze bust of the late Dr. S. Weir Mitchell. The bust is the work of William Ordway Partridge.

Selection of School Doctors.—The civil service commission of Boston announces an examination to be held September 23 for the establishment of an eligible list of doctors from which thirty-five to forty appointments will be made as school physicians. The salary for each physician is approximately $500. Dr. W. H. Devine of South Boston has been appointed director of school physicians, nurses and military drilling. His salary will be about $1,500. Forty-six nurses are also to be appointed.

Personal.—Dr. Thomas B. Shea, Boston, has been appointed chief of the medical division of the department of health with an increase in salary from $3,000 to $5,000. Dr. Patrick H. Mulloney, formerly a member of the Boston Board of Health, has been appointed a deputy health commissioner. Dr. Francis H. Slack, formerly secretary of the board of health, has been made deputy in the bacteriologic department.——Dr. Walter F. Cobb, Cape Girardeau, Mo., has been appointed head of the school hygiene and physical development department of Holyoke.——Dr. Elisha H. Cohoon, Howard, R. I., has succeeded Dr. Elmer E. Southard as administrative head of the Boston State Psychopathic Hospital. Dr. Southard remains as director and in charge of the scientific researches of the institution.——Dr. Edward H. Nichols, head of the Harvard surgical unit in France, has returned from abroad. The base hospital at which he was stationed was located at Dannes-Camier, fifteen miles from Boulogne.——Dr. Richard Pearson Strong is returning to this country to resume his position as professor of tropical medicine in Harvard Medical School.

MICHIGAN

Meeting of the Michigan State Medical Association.—At the annual meeting of the Michigan State Medical Association, held September 1 and 2, the following officers were elected: president, Dr. A. W. Hornbogen, Marquette; secretary and treasurer, Dr. F. C. Warnshuis, Grand Rapids; delegate to American Medical Association, Dr. A. I. Lawbaugh, Calumet. Houghton was selected as the next meeting place. At the suggestion of Dr. Stanley G. Miner, a committee was appointed on the surveillance and inspection of public eating places. This committee was composed of the following members: Drs. L. J. Goux, Detroit; J. R. Rogers, Grand Rapids, and J. E. Gleason, Detroit.

MINNESOTA

Hospital for Indians to Open.—It is expected that the new hospital for Chippewa Indians in Minnesota, located at Redlake, Minn., will be ready for occupancy by October 15. The capacity is twenty-five beds. The service will be general, although especial attention will be given to eye, ear, nose and throat work, there being a large amount of this class of work among the Minnesota Chippewas. Trachoma has been especially prevalent, and while its incidence has been largely reduced in the boarding schools by energetic work on the part of the agency physician, the older Indians in the homes have not had the proper facilities to combat the disease. The new hospital will greatly assist the relief of this condition.

MONTANA

Personal.—Dr. and Mrs. Wilder P. Ellis, Helena, sailed from New York, August 26, for Urumiah, West Persia.——Dr. William H. Allen, Joliet, is slowly recovering from a serious illness caused by bee stings.

Spotted Fever.—Thirty-five cases of Rocky Mountain spotted fever with seven deaths were registered in Montana during the present summer. Cases were reported from the following counties: Big Horn, 1; Carbon, 3; Custer, 8; Cascade, 1 (imported from Idaho); Dawson, 6; Fallon, 2; Gallatin, 2; Missoula, 4; Ravalli, 3 (one imported from Idaho); Rosebud, 5. Deaths occurred as follows: Big Horn, 1; Fallon, 1; Missoula, 3; Ravalli, 2. The disease has heretofore been thought to be more prevalent in Western Montana. The report of the state board of health, however, shows that more cases were reported from Eastern Montana, though they were milder in character. Surgeon Lunsford D. Fricks, Washington, D. C., of the Public Health Service, with his assistants and with the cooperation of the state board of health, has been conducting cultural experiments with the virus, and although nothing definite has been determined, it is believed some progress has been made. Advances in the therapy of the diseases will, it is believed, follow the successful cultivation of the virus.

NEBRASKA

New Hospital for University.—Plans have been approved by the Board of Regents of the State University for a new hospital in connection with the College of Medicine at 42d and Harney streets, Omaha. The building is to be five stories in height and will have six wards of sixteen beds each, three receiving rooms, six groups of isolation rooms of three beds each, and the necessary operating rooms, operating amphitheater, and rooms for administration and service.——The free medical dispensary of the University of Nebraska Medi-

cal College cared for 6,801 patients during the first seven months of the year.

NEW YORK

Personal.—Dr. William C. Bissell, formerly director of the bacteriologic laboratories of the city of Buffalo, has been reappointed as state medical examiner, and will have special supervision of the subjects of hygiene and sanitation.

Convalescent Home Dedicated.—The Federation of Rumanian Jews of America dedicated their new convalescent home at Grand View on the Hudson on September 6 with impressive ceremonies. The home will be superintended by the federation and thirty-five affiliated societies and will offer accommodations for 200 convalescents.

Courses in Public Health.—Pursuant to the recommendations of the public health commission that medical colleges in New York state introduce courses in sanitary science leading to a degree which ultimately might be required of all health officers, three such courses have been developed at New York University. One of the courses will consist of field work, laboratory work, lectures and conferences, and will cover six weeks. The course leading to the degree of Doctor of Public Health begins with a six-weeks course and continues with optional work for a further six months to complete the first year. The second year is devoted to original work and the writing of a thesis. There will also be an extension course covering 300 hours of home reading and written examinations with a final week in the laboratories of the university. The extension course begins October 1. The other course began on July 15.

New York City

Personal.—Dr. Louis Brooks and Dr. Joseph King sailed for Europe with the first contingent of the American Physicians' Expedition Committee, which is under the charge of Dr. Herman Fischer, on the Scandinavian-American liner *Oscar II*, on September 8.

Physical Examination of Food Handlers.—For some time past the department of health has required bakers and peddlers to submit to a physical examination in order to prevent those having infectious diseases from engaging in these occupations. With a view to extending such examinations to others engaged in occupations requiring the handling of food the physical examination of cooks, waiters and other food handlers in hotels and restaurants will be enforced in the district No. 3, the principal hotel district of the city. In time it is hoped to extend the work to the hotels and restaurants throughout the city. This order will eventually affect 90,000 cooks, waiters and dishwashers in this city. The health officials in the 2,000 persons so far examined have found two cases which gave positive typhoid reactions and eight who gave suspicious reactions. Other infectious diseases were found in 1 per cent. of those examined.

NORTH CAROLINA

Damages for Soil Pollution.—Damages to extent of $3,000 was awarded in Guilford County Superior Court against the city of High Point, N. C., in favor of a nearby farmer on whose land the city sewer was emptied.

Erection of New Hospital Begun.—Work on the new hospital at Piedmont Heights, a suburb of Burlington, has begun. When completed it will represent a $25,000 investment and will be fully equipped for general medical and surgical work. Dr. J. Rainey Parker, recently of Goldsboro, will be surgeon in charge.

PENNSYLVANIA

Personal.—Dr. William H. Krickbaum, Danville, a member of the staff of the State Hospital for the Insane, has been infected with typhoid contracted in the epidemic that has broken out in that institution. It was reported, September 11, that 115 of the inmates of the hospital were infected and that thirty cases had appeared in the town of Hospital. Arrangements are being made to utilize the new Leisinger Memorial Hospital to treat these patients.

Typhoid Spreading in Danville.—Three new cases of typhoid fever developed September 6, at Danville, at the State Hospital for the Insane, bringing the total there up to seventy-eight. Of these fourteen are attendants and one is a nurse. The remainder are inmates. The number of deaths stands at three. The authorities were encouraged today by the discovery of what is believed to be the source of contagion at the hospital. It has been ascertained that an assistant chef in the hospital kitchen, at present ill with the disease, had the fever in a walking form three weeks prior to leaving his duties. It is thought that during that time he spread the fever to the other employees and to the inmates through the food he handled.

Philadelphia

Arraign Violators of the "Housing Act."—Eight proprietors of tenement houses were arraigned in the city hall police court, September 8, charged with violations of the housing act of June 11, by conducting their places without licenses. In those cases in which continuances were allowed, it was stated that the reconstruction work required by the division of housing and sanitation of the bureau of health to fit the tenements to meet the requirements of the new law were under way, either by the tenants or the landlords.

Hotel Cooks and Waiters Must Have Director Ziegler's "O. K."—Employees of hotels and restaurants will be subjected to medical inspection by the corps of medical inspectors of the bureau of health as quickly as the work can be carried out, to enforce the provisions of the act prohibiting the employment in public places of cooks, waiting maids, kitchen help, chambermaids or other house servants who suffer from contagious disease. The act calls for the protection of public health and was a salutary measure that should appeal to employers. The act embraces not only hotels and restaurants, but dining cars and all public eating places.

Thorough Sanitary Survey to Be Made of City Schools.—An exhaustive study of sanitary conditions in the public school system, with special attention to the immediate needs of those buildings in which the health of pupils is menaced by faulty ventilation and insufficient floor space, will be conducted by the department of superintendence. Prof. Albert H. Raub, associate superintendent of schools, will be in charge of the investigation, and he will have the cooperation of school medical inspectors. The work of the medical department, coupled with the new course in practical hygiene to be introduced in the elementary schools about September 16, will go far toward obviating dangers from defective buildings.

Alterations and Additions to Hospitals.—Alterations and additions to the City Mission for Consumptives at Chestnut Hill, the contract having just been awarded, are to cost $12,000.——Alterations to the Orthopedic Hospital, Summer and Seventeenth streets, now under way, will cost $2,000.——An addition to the nurses' home at the Jewish Hospital, Old York Road and Olney Avenue, is now being planned by architects.——Carl-Beth, the country seat of the late Charles O. Kruger, is now part of the Abington Hospital buildings, under lease. Located in a beautiful park that faces the hospital, it will be used as a nurses' training school and home. ——Builders are estimating on alterations and a second story $3,700 brick addition, 10 by 9 feet, to the Polyclinic Hospital, Lombard and Nineteenth streets.

Philadelphia, the Postgraduate Center.—A plan to correlate the medical teaching facilities of Philadelphia for postgraduate study purposes is now given publicity. One hundred of the city's medical leaders have formed themselves into an association with the temporary title of the Co-Operative Association for Post-Graduate Teaching of Medicine in Philadelphia. The chairman is Dr. David Riesman. Dr. George P. Müller is temporary secretary. This association will investigate the resources for postgraduate teaching that exist in Philadelphia, so arrange hours as to enable the graduate student to spend each day in constant clinical study or laboratory work in a number of institutions. To accomplish this there is to be established a central office, in charge of a permanent secretary, where rosters of courses would be made, all information listed, so that a prospective student would find everything prepared in advance for him.

CANADA

Canadian Members of Parliament at the Front.—Dr. D. B. Neely, M. P., Humboldt, Sask., has joined the seventy-eighth regiment as medical officer. This makes eight members of the Canadian Parliament enlisted, three being members of the Canadian medical profession: the two others are Hon. Dr. Beland, a prisoner in Germany, and Dr. David E. Warnock who is in charge of imperial remount work.

Personal.—Dr. W. P. Jones, Chatham, N. B., who has been in England and France the past two months, has returned home.——Lieut.-Col. Herbert A. Bruce, M.D., Toronto, who has been attached to the Duchess of Connaught Hospital, England, the past two or three months, is now attached to No. 2 Canadian Hospital at Le Trefort, France.——Dr.

Charles J. Hastings, M. O. H., Toronto, has been elected first vice president of the American Public Health Association.

Toronto Leads Fight Against Consumption.—At the concluding session of the Canadian Public Health Association held in Toronto on September 4, Miss Eunice Dyke, chief nurse in charge of tuberculosis work in connection with the health department of Toronto, stated that more than double the number of deaths from consumption had been reported last year than cases of consumption reported in the province of Ontario during the same period. The law requires all physicians to report every case but the doctors had in many instances failed to comply with the law. In Toronto, however, every case is immediately reported and dealt with by the authorities. The following officers were elected: Hon. president, Dr. Peter H. Bryce, Ottawa; president, Dr. Chas. J. Hastings, M. O. H., Toronto; vice president, Dr. J. D. Page, superintendent of Immigration Hospital, Quebec City; general secretary, Dr. Duncan M. Anderson, Toronto; treasurer, Dr. George D. Porter, Toronto.

Fine Organization of Canadian A. M. C.—Major Charles E. Doherty, M.D., superintendent of the New Westminster Hospital for the Insane, British Columbia, called at Ottawa on September 9 on his way west to British Columbia. Major Doherty has been brought back from hospital work in London, England, by the Canadian government to organize the work of looking after the invalided Canadians who are returning to Canada, either to convalesce before returning to the war or to be discharged on pension after their cases have been passed on by the medical boards. There are now about 3,000 of these in Great Britain and most of them will be back in Canada before Christmas; a few hundreds have already arrived. Major Doherty, who will be attached to militia headquarters at Ottawa, has gone to visit Winnipeg and other militia districts as far west as Victoria, B. C. He speaks in the highest praise of the Canadian medical services in England and France which is being maintained under the direction of Surgeon-General G. Carleton Jones. Both the French and the British staff officers had very highly praised the work of General Jones. There are now between 1,400 and 1,500 Canadians attached to the overseas army medical corps. There are about 5,000 Canadian hospital beds in France and another 5,000 in England. More doctors from Canada are needed by the war office, and twice the present number of Canadians now attached to the R. A. M. C. could be used. Major Doherty stated in an interview that in the fighting at Ypres more than 5,000 men were passed through the Canadian field hospitals in seventy-two hours, and the work was handled by six doctors with the utmost efficiency and despatch. At the present time Canada has five field ambulances, three base hospitals, one stationary hospital and two casualty clearing hospitals in France. He says there should be no let up to the supply of bandages, socks, clothing, tobacco, etc., being sent forward by the women of Canada and others.

GENERAL

Meeting of Railway Surgeons.—The ninth annual meeting of the Minneapolis & St. Paul and Sault Ste. Marie railway surgeons will be held in Hotel Radison, Minneapolis, September 7 and 8.

New England Tuberculosis Conference.—The second annual New England Tuberculosis Conference will be held in Springfield, Mass., October 22 and 23, under the auspices of the National Association for the Study and Prevention of Tuberculosis. The subjects for the various sessions are as follows: 1. Programs of antituberculosis work. 2. Red Cross seal sales methods. 3. Industry and tuberculosis. 4. Methods of antituberculosis work. 5. The diagnosis of incipient cases of pulmonary tuberculosis.

Central States Conference on Social Hygiene.—The first Central States Conference on Social Hygiene will convene in Chicago, October 25 and 26, in the Congress Hotel. The general features of the social hygiene movement, the moral and educational features, the medical and public health aspects, and the legal and administrative phases, will be discussed. An advisory committee which has been selected is led by President Abram W. Harris of Northwestern University. The secretary may be addressed at 1949 Peoples Gas Building, Chicago.

Correspondence Course for Medical Reserve Corps.—In order to provide a system of instruction in field duties for officers of the medical reserve corps on the inactive list, a correspondence course, somewhat similar in character to that prescribed for medical officers of the organized militia, is to be inaugurated at the army field service and correspondence schools for medical officers. The course, which is to be comprehensive, graded, and progressive, will extend over a period of four years. Members of the medical reserve corps are being urged to enroll themselves for this course.

Meeting of American Public Health Association.—The forty-third annual meeting of the American Public Health Association and the fifteenth annual conference of the Sanitary Officers of the State of New York met in Rochester, N. Y., September 6. Over 1,800 health officers and sanitary experts were present. At the opening session an address was delivered by Major-General Gorgas, who described the work in the Canal Zone; an address was also delivered by Dr. O. M. Leiser of New York on the "patent medicine" evil. Dr. Herman M. Biggs, state commissioner of health, presided. At the first day session, September 7, a symposium on the subject of pure milk was held with the following speakers: Dr. W. H. Park, New York; Lucius P. Brown, New York; Dr. Linsly R. Williams New York; Prof. H. W. Conn, Wesleyan University; Drs. H. D. Pease and C. E. North, New York. There were also reports on cold storage and morbidity statistics. At the second open meeting Governor Whitman of New York and Mayor Edgerton of Rochester spoke; also Professor Sedgwick, president of the association. Dr. John F. Anderson, U. S. Public Health Service of Washington, D. C., was elected president.

Second Pan American Scientific Congress.—The Second Pan American Scientific Congress will meet in Washington, D. C., December 27, 1915, and adjourn January 8, 1916. In the official announcement of the Congress it is said that its purpose is to bring about a better understanding of the ways in which the several American republics can work to the advancement of science, the increase of culture, and the promotion of trade, commerce and mutual helpfulness. It is hoped that our foremost scientists, learned societies and educational institutions will cooperate to insure the success of the Congress. The Congress will be divided into nine sections, which, with their chairmen, are as follows: Anthropology, Mr. William H. Holmes; Astronomy, Meteorology and Seismology, Mr. Robert S. Woodward; Conservation of Natural Resources, Mr. George M. Rommel; Education, Mr. P. P. Claxton; Engineering, Gen. W. H. Bixby; International Law, Public Law, and Jurisprudence, Mr. James Brown Scott; Mining and Metallurgy, Economic Geology and Applied Chemistry, Mr. Hennen Jennings; Public Health and Medical Sciences, Gen. William C. Gorgas; Transportation, Commerce, Finance and Taxation, Mr. L. S. Rowe. The sections will be divided into subsections, forty-five in all, each with its special committee and program. There will also be joint sessions of the sections, and meetings in connection with the meetings of other associations, a number of which have accepted the invitation to hold their meetings in Washington at the time of the Congress. Official delegates, representatives of universities, institutes, societies and scientific bodies of the countries represented, persons invited by the executive committee, with the approval of the countries represented, and all writers of papers will be considered members of the Congress. There will be no membership fee. Special Pan American topics will be discussed in a series of conferences, and in the medical section subjects of vital Pan American interest in the field of infectious and nutritional diseases, vital statistics, sanitation, etc., will be presented. Anaphylaxis, protozoa and cancer will be among these subjects. The first Congress was held in Santiago, Chile, in December, 1908, and January, 1909. John Barrett, LL.D., is Secretary General and Glen Levin Swiggett, Assistant, with headquarters at the Pan American Union, Washington, D. C., from whom further information may be obtained concerning the Congress.

WAR NOTES

Cholera in Turkish Army.—According to advices received at Athens, Asiatic cholera is raging in the Turkish army. A request for additional nurses and cholera experts is said to have been sent to Berlin by the German officers of the Ottoman army.

Munich Art Museum a War Hospital.—The famous National Art Museum at Munich and the new custom house have been transformed into hospitals for wounded and crippled soldiers. The museum is used exclusively as an orthopedic hospital.

Exchange of Medical Officers and of Disabled Prisoners Between the Germans and French.—The *Medizinische Klinik*

states that the second party of exchanged prisoners has reached Germany by way of Constance. It included several hundred medical men, attendants and bearers for the sick, with fifteen officers and 700 privates.

Deaths Abroad.—J. B. de Lacerda, a scientist of Brazil, director of the National Museum and chief of the university laboratory for research on physiology, died recently at an advanced age. He published numerous works on yellow fever, beriberi, cobra venom, etc., and was the official delegate from Brazil to many international scientific congresses.

Hospital Journal for the Crippled.—Under the editorship of Dr. Pfeiffer, a journal has been founded which aims to supply necessary information to the crippled and disabled soldiers. It is called the *Lazarettzeitung für Kriegsbeschädigten*, and is published under the auspices of an organization at Hamburg which aims to improve condition of those injured in war.

Prophylaxis of Cholera at Breslau.—As a case of cholera was discovered on a river boat at Breslau, the authorities have ordered all bathing and swimming establishments and bathing beaches closed. The use of unboiled water is forbidden for any purpose, even for washing clothes. Any infringement of the regulations will be punished by a prison term to a maximum of one year.

German Medical Journals and the Censor.—The editor of the *Deutsche medizinische Wochenschrift* requests all contributors to its columns to have their communications passed on by the proper military or medical authorities before they are sent in for publication, as the military censoring of medical journals is to be made still stricter. A recent decree on the subject states that this step is taken because communications have been published which contained untrue and inaccurate statements, and were adapted to breed uneasiness among the populace and to be exploited in the enemies' countries to the detriment of the Germany army.

PARIS LETTER

PARIS, Aug. 26, 1915.

The War

THE AMERICAN RELIEF CLEARING HOUSE

The assistant secretary of state of the medical service has just sent to the regional directors of that service a letter informing them that the American Relief Clearing House, which I mentioned in a previous letter (THE JOURNAL, Aug. 28, 1915, p. 813), wishes to send delegates to make a first hand study of the best method of distribution of the donations made in the United States for the benefit of the sick and wounded of our armies. He has given Messrs. Walter Abbott, James R. Barbour, H. O. Beatty, Charles Carrol, J. Ridgeley Carter, H. Herman Harjes, J. J. Hoff, James H. Hyde, Charly Knight, M. P. Peixotto, Charles R. Scott and Whitney Warren letters accrediting them to the medical heads of the hospitals in the territory for the purpose of conferring with the latter for this purpose. In this connection he pays a compliment to the "greatly appreciated services" of the Comité central des Secours Américains, which is under the patronage of the heads of the governments of the allied countries and under the honorary presidency of the Hon. Myron E. Herrick, former ambassador of the United States to France, and of the Hon. Robert Bacon, who has succeeded him.

IMPROVEMENTS DESIRABLE IN THE MEDICAL SERVICE

I mentioned in a previous letter (THE JOURNAL, Sept. 4, 1915, p. 891) an interesting study on the medical service published by M. André Maginot, former assistant secretary of war. Maginot has just published a second article on the same subject, emphasizing a serious defect in the medical service, in that each officer tries to give the impression of that economy which is too apt to be confused with good administration. Not daring to apply to the government, whose function and duty it is to supply the needs of its services, administrative heads are reduced to the necessity of soliciting private generosity to supply absolute necessaries. There are hospitals in which important services like those of mechanotherapy and roentgenography could not be supplied except by the aid of private persons, and in which surgical services were not able to operate without the aid of generous donors. It may be desirable that our patients and our hospitals should benefit by private generosity; it is quite natural that such generosity should be encouraged, but it is not right to rely on it as a normal resource for supplying not only luxuries and superfluities, but also absolutely indispensable supplies. It is the duty of the medical service to furnish antiseptics, gauze, boxes of dressings, autoclaves, and necessary surgical instruments and apparatus; this should not be left for private persons to do. That private persons should aid the government is laudable; that they should take over its functions is inadmissible. The only means of putting an end to this condition of things would be to give a little more autonomy to the medical superintendents of our hospitals. So long as the superintendents are compelled to apply to their regional directors to obtain an instrument costing a few francs, the evil has no remedy. Such centralization may not be excessively inconvenient in times of peace, but at present, when one director has sometimes a hundred or a hundred and fifty hospitals under his orders, how can it be expected that he will not be overwhelmed by the mass of demands made on him? Almost inevitably he comes to look with favor on those who demand the least of him, and to make those who demand the most (which often is only what is necessary) feel that they are importunate. "Your requests are justified in principle," recently wrote a regional director to one of his superintendents, "but they are becoming too numerous; the minister may become tired of them." There is no reason for surprise if under such conditions the medical staff hesitates to demand what it needs.

What is necessary is to free the superintendents from their present obligation to requisition everything from the superior authority. They ought to be given the privilege of making purchases on their own responsibility up to a certain sum. Each hospital ought to have at its disposal a sum proportioned to the number of beds to be thus expended. Our physicians then would not hesitate to make outlay for indispensable objects. The hospitals, the patients and the public finances would gain by such measures.

PSEUDOTETANIC COMPLICATIONS OF WOUNDS OF WAR

At a recent session of the Académie de médecine, Dr. René Le Fort of Lille reported three cases of serious painful spasmodic complications simulating tetanus, which deserve to be known. The three patients suffered from lesions of the nerves complicated by the presence of foreign bodies. In the first patient, the thigh and the leg were contractured in hyperextension; in the second and third, the thigh and the leg were in hyperflexion; in all three, there was equinism of the foot, with varus in the second and third cases. All the patients had had injections of antitetanic serum. In all three cases the complications improved a few days after the removal of the foreign body; they remained localized in the lower limbs and the pelvic muscles. They were terminated by recovery. In the third patient, however, they had previously attained an intensity which threatened the patient's life.

VIENNA LETTER

VIENNA, Aug. 16, 1915.

The War

THE SANITARY CONDITION OF VIENNA

The war with its unusual and unexpected consequences has of course brought to every community the risk of the importation of epidemics and infectious diseases to an alarming degree. Nevertheless, Vienna has so far been lucky enough to control every outbreak very early. Naturally, the movement of troops from the battlefield has brought numerous cases into the city, but the military authorities have proved that they are equal to the task. As a matter of fact, our prophylactic measures have been a complete success. Smallpox was introduced by the civil population, that is, the fugitives from Galicia, at the commencement of the war a year ago, but typhoid, dysentery and exanthematic typhoid did not occur in the civil population to a degree worth mentioning. Of smallpox, however, about 400 cases were reported with a mortality of 6 per cent., and every now and then a case is still brought to the notice of the authorities. Vaccination was instituted promptly; it was practically compulsory, and about 99 per cent. of all inhabitants of Vienna may be regarded now as vaccinated or revaccinated. In the army, of course, every soldier is vaccinated. Last fall, cholera was rather frequent among the troops stationed on the Russian frontier. Extensive vaccination against this disease, as well as strict control of the water supply, resulted in an instantaneous suppression of the epidemic. The experience of the army medical corps tends to prve that the protection afforded by the injection of 1 or 2 c.c. of the anticholera vaccine lasts between five and twelve weeks. Injections repeated at intervals of from five to eight days, from three to five times, seem to be the best. The most effective treatment consists in cardiac stimulants, hypodermoclysis, and tincture of iodin by mouth, through which

means the mortality can be considerably lowered. The population of the country in which the fighting has taken place, however, has suffered severely from cholera, owing to the lack of sanitary arrangements. Especially where the Russian forces stayed for a considerable time, the large percentage of Cossacks and other troops of a low sanitary standard proved a source of infection; and sexual diseases abound there among the female part of the population. Luckily, the Austrian army had little to suffer in this respect, and in Vienna there has been an actual decline in the number of patients in the dermatologic clinics. Typhoid and dysentery, which at present are not infrequent in the population of the places in which there have been battles, were kept away from Vienna. The mortality in this city, which averaged 17 per thousand five years ago, and had gone down to 15 per thousand in 1913, has not risen during war time. This is no doubt due to the strict hygienic measures instituted by our board of health, and to the extensive help given when mothers with infants applied for it. Though it appears paradoxical, the war with its severe nervous strain, its heavy burden on the mode of living, the high prices for food and the mental excitement has made us harder, stronger and healthier. Infant mortality has gone down about 10 per cent. within the last twelve months, and the regular epidemics of measles, scarlet fever and diphtheria which reign during autumn and winter in this city have been mild. Thus, Vienna entered on the second year of the war with very good prospects.

NUTRITION DURING THE WAR

Owing to the nearly complete suspension of the importation of articles of food into this country, the problem of nutrition was of paramount importance. The authorities at once confiscated all supplies of wheat, grain, maize and all flour, and also the new harvest was seized by the state. The quantities of these articles of food were so divided up among the people that Austria-Hungary was able to guarantee for every person within its boundaries, including the fighting forces, a quantity of 280 gm. (a little over 9 ounces) of bread, or 200 gm. (6½ ounces) of flour per day up till the end of 1915, without using the harvest of 1915. To attain this end, the flour was handed over to the consumers only in a mixture which contained about 70 per cent. wheat and 30 per cent. maize flour. Lately, since the rich harvest of this year was brought in, the composition of flour has been improved gradually until at present fine white flour bread without any admixture can be made and obtained. The cutting down of the daily supply of bread flour along with the low quality of the bread, as compared with the bread of former days, has resulted in a marked drop in the consumption of the article, so that the visible quantities of flour would last for a much longer period than they were expected to. The "heavy" bread, which the population had to eat during about five months, has had the most surprising result. The large number of persons suffering from obstipation has nearly disappeared. People soon discovered this wholesome effect of the "war bread." Flatulence, so often produced by eating too "light bread" also vanished. The increased functioning of the bowels has done away with so many conditions due to sluggish action of the bowels that the general condition of the health of the population has improved in a marked degree. Also the consumption of meat has gone down by at least 40 per cent., owing to the high prices of this article. A kilogram costs from $1 to $1.50. This has produced a welcome effect: people see they can get on well with a small quantity of meat, and this in its turn causes a diminution of the intestinal putrefaction.

This war is an excellent instructor of nations and peoples. What thousands of medical men could not achieve the war has easily brought about: simplicity of life, abstinence, and wholesome mode of living. It proves that national health is compatible with less eating than the civilized world was used to. Of course, there is not the least idea of hunger or famine in Austria-Hungary. People eat less meat, but more fruit and vegetables, especially potatoes, and maize. These articles are present in abundance; the beet root is in excellent condition, and fruit is as cheap as can be wished. Only eggs are relatively expensive, from 2½ to 3 cents each. Tea, chocolate, coffee, rice and butter are just a trifle dearer than in normal times.

THE PROBLEM OF ARTIFICIAL LIMBS

The mutilations caused by modern fighting are much more extensive and more frequent than in former "inhuman" wars. Numerous soldiers, in numbers which in former days would have been regarded a large army, are now crippled, and a movement has sprung up in the central European countries to supply these poor victims with substitutes for their lost limbs. In this country Professors von Eiselsberg and Spitzy are at the head of this movement. They first of all collected a large percentage of the cases needing such apparatus, and a regular limb factory has been established in one of our surgical clinics, where upward of forty skilled men are busily engaged in the production of artificial limbs. Didactic demonstrations of the possibility of using such limbs are given to the unfortunate soldiers. There is a demonstration of a man who lost both arms and both feet in an accident, and now by means of four artificial limbs is able to do all the work he used to do before the mishap, and he teaches also the soldiers and encourages them to practice. Great care is taken to assure perfect fit, easy application and reliability with simplicity of all these limbs. Public attention, being once drawn to this problem, soon manifested its interest in it by substantial gifts, so that the soldiers need hardly pay anything for their new limbs. Already one may see field laborers who do not work less than their normal brethren, working with tools held in artificial hands, while of course the stumps of legs are minor troubles. Only cases of frostbite of the foot or hands, so frequently sequels of the frightful fighting for weeks and weeks in deep snow in the Carpathian Mountains, are a little troublesome, more so than the surgical cripplings by gunshot or the cold blade.

BERLIN LETTER

BERLIN, Aug. 17, 1915.

Personal

August 15, the celebrated gynecologist, Prof. W. A. Freund, celebrated his sixtieth anniversary as a practitioner of medicine. Since his retirement from the University of Strasburg Freund has not been in active practice. He is still in good physical and mental condition.

Professor Magnus of Utrecht declined to accept the directorship of the pharmacologic institute in Halle.

Prof. M. Rothmann of Berlin died August 12, aged 47. After serving several years as Albert Fränkel's assistant at the Urban Hospital, he associated himself with the physiologic institute connected with the veterinary school and there, under the direction of Hermann Munk, he began experimental researches into the physiology of the central nervous system. He achieved some remarkable results, particularly with reference to the localization of individual brain functions. He kept his famous "dog without a cerebrum" alive for three years. He also published a large number of clinical observations on the diseases of the nervous system. His many studies of monkeys created the desire to study these animals as nearly as possible in their natural way of living. With the aid of several funds he succeeded in building an anthropoid station in Teneriffa. The results of the observations made there were reported recently by Rothmann and proved of great value in the conduct of the present war. As a result of overwork and the severe mental shock incident to the death on the field of battle of his son, this strong man succumbed after two days' illness to an attack of pneumonia.

The War

The appearance of several cases of cholera among soldiers returning home from the front and several civilians in the Oder district has led the authorities to increase their efforts at prevention of the spread of this disease. Every known measure is being resorted to, especially in regard to water sanitation, and the steps previously taken in the Weichsel district, which proved so successful, are now being duplicated in the east. Therefore it is expected that cholera will not assume any alarming proportions. Similar precautions are being taken with reference to other infectious diseases and the results thus far have been good, although several cases of typhus, dysentery, meningitis and typhoid have occurred both in the east and in the west, but nowhere is there any danger of an epidemic. Cases of these diseases are, in fact, restricted almost entirely to the soldiers. M. Dessoir of Berlin, the well-known psychologist, has received permission from the military authorities to conduct psychologic studies in the eastern war zone. Particular attention will be directed by the professor to the various forms of psychasthenia, the influence of psychologic differences of age, heredity, etc.

To lower the infant mortality, the Kaiserin Auguste Viktoria Hospital has established a traveling exhibit for infant welfare in Brussels. The exhibition will embrace every-

thing connected with buildings, statistics, pregnancy, puerperium, birth, development and care of infants, natural and artificial diet, diseases of infants and the care of mothers and infants.

The Kaiser Wilhelm Institute for the Study of the Physiology and Pathology of the Workingman

This institute has now begun its work. Researches will be made in the physiology, pathology and hygiene of labor (work), the mental and physical welfare of the workingman. The relationship of labor to the age of the workingman, the sex, the race, nourishment, environment, clothing, etc., will be investigated. The physiologic chemistry department will investigate particularly the physiology of nutrition in order to determine the influence of food on the working capacity of the workingman and the influence of alcohol on muscle energy. The statistical division will approach the question from another point of view including a study of food and food elements, animal as well as vegetable, the size of a family as bearing on the nutrition, the difference in eating in the city and in the country among the poor and among the rich. The psychologic division will investigate the influence of labor in its relationship to psychathenia, etc. The work done by others in similar fields will place these studies on a definite basis. The well-known Taylor system has done much to further these studies; for instance, it is known that severe physical labor causes the blood to leave the viscera and appear in increased quantity in the extremities. Physical tire, on the other hand, produces the opposite. Therefore deleterious effects may be prevented by regulating the work either by frequent periods of rest or by changing the kind of work so that other muscle groups may be brought into play. Valuable results have been obtained from the work done in this institute and have led to the adoption of "scientific management" of work. The interests of capital are not considered in this investigation. It is solely a question of the interests of labor. It is very difficult, indeed, to draw a line between the pathology and physiology of work. May one speak of the pathology of work when the workingman is disturbed by noise as in a boiler shop, or may one only speak of the pathology of work when the workingman becomes ill as the result of his work? It is the aim of the institute to investigate all the phases of this question thoroughly so that the results may prove beneficial to the workingman as well as to his employer. Tuberculosis will come in for a large share of study, especially with regard to the etiologic relationship of poor housing conditions in the cause and spread of tuberculosis. The alcohol question, female and child labor, etc., will be investigated.

Marriages

CAPTAIN EDGAR W. MILLER, M.C., U. S. A., Texas City, Texas, to Miss Orman Faye Smith, of Flatbush, N. Y., August 14.

WALTER GRESHAM SEXTON, M.D., Marshfield, Wis., to Miss Ethel Hartley Morgan, of Roland Park, Baltimore, September 1.

JESSIE S. NEWKIRK, M.D., Kansas City, Kan., and Mr. A. R. Knight of St. Louis, at Olathe, Kan., Sept. 25, 1913.

EDWIN PAUL KOLB, M.D., to Miss Helma Louise Frederick, both of Ray Brook, N. Y., at Utica, N. Y., August 28.

ROSCIUS IRVING DOWNS, M.D., Riverside, N. J., to Miss Mabel Hassard Curtiss of Ansonia, Conn., August 21.

MYRON L. COOLEY, M.D., Waterbury, Conn., to Miss Julia M. Birkenmayer of New York City, August 30.

JOHN ANDREWS EVERT, M.D., Brainerd, Minn., to Miss Pearl A. Nash of Pipestone, Minn., August 28.

JOHN EVERETT CARTLAND, M.D., Canton, Me., to Miss Genevieve Ella Dwinal of Auburn, Me., August 26.

CLARENCE TYLER ROOME, M.D., Evanston, Ill., to Miss Elizabeth Todd of Westfield, N. J., September 8.

FRANK W. HILSCHER, M.D., to Miss Dessie Carlson Gochenour, both of Spokane, Wash., August 14.

ALICE DODGE WILLIAMS, M.D., and Marie Albert Guénard, Baron DuVivier, both of Chicago, September 4.

WILLIAM ARRASMITH, M.D., to Miss Jean Minnich, both of Palmer, Neb., August 25.

Deaths

Nelson Walton Wilson, M.D. University of Buffalo, N. Y., 1898; aged 50; a Fellow of the American Medical Association; Acting Assistant Surgeon, U. S. Army from 1898 to 1900; acting professor of genito-urinary diseases in his alma mater in 1904 and 1905; genito-urinary surgeon to the Emergency Hospital, Buffalo; and assistant genito-urinary surgeon in the Buffalo General Hospital; surgeon in charge of the Emergency Hospital at the Pan-American Exposition when President McKinley was shot; died suddenly in the Republic Theatre, New York City, August 30.

Frederic Campbell Gillen, M.D. University of Michigan, Ann Arbor, 1893; aged 44; formerly a Fellow of the American Medical Association; a member of the Wisconsin State Medical Society and a member of the faculty of the dental department of Marquette University; while conducting chemical experiments in the yard of his home in Milwaukee, September 2, was injured by an explosion, and died soon after.

William Sutphen Combs, M.D. College of Physicians and Surgeons in the City of New York, 1866; aged 73; surgeon of the Thirty-Eighth New Jersey Volunteer Infantry during the Civil War; for one term a member of the Board of Trustees of the State Home for Epileptics, Skillmans, N. J.; died at his home in Freehold, N. J., August 15.

Philip Arthur Reppert, M.D. Rush Medical College, 1903; aged 55; lecturer on anatomy and surgery in the Burlington and Mercy Hospital training schools for nurses, Burlington, Iowa; formerly professor of preventive medicine in the University Medical College of Kansas City, Mo.; died at his home in Burlington, August 29.

George P. S. Brown, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1877; St. Louis College of Physicians and Surgeons, 1890; aged 62; a member of the Missouri State Medical Association; for thirty-eight years a practitioner of Christian County, Mo.; died at his home in Nixa, August 26, from gallstone disease.

Nathaniel White Lynde, M.D. College of Physicians and Surgeons in the City of New York, 1887; aged 56; at one time assistant physician to the Inebriate's Home for Kings County, N. Y.; formerly a member of the Medical Society of the State of New York; died in the Astor Sanatorium, New York City, September 3.

James Charles Fahey, M.D. University of Vermont, Burlington, 1891; aged 48; a Fellow of the American Medical Association; surgeon to the Cooley-Dickenson Hospital, Northampton, Mass.; city physician of Northampton from 1896 to 1900; was found dead from epilepsy in his room in Northampton, August 24.

Charles F. Reiff (license, Ohio, 1897); aged 70; formerly a Fellow of the American Medical Association; for more than thirty years superintendent of the water works office and chief of the fire department of Fremont, Ohio, and for fifteen years city physician; died at his home in Fremont, September 2.

Swan Burnett Woody, M.D. Vanderbilt University, Nashville, Tenn., 1893; aged 49; a member of the Medical Society of the State of North Carolina; for many years a practitioner of Asheville, N. C.; died at his home near Spring Creek, N. C., August 28, after an operation for appendicitis.

John H. Sweet (license, Rhode Island, 1895); aged 65; said to have been the last of the Sweet family of "bone-setters"; so well known in New England years ago; died at the home of his son in Newport, R. I.; August 31, after an operation for the relief of disease of the intestines.

Samuel Wood Dana, M.D. College of Physicians and Surgeons in the City of New York, 1858; aged 87; a Fellow of the New York Academy of Medicine and for more than fifty years an active practitioner of New York City; died at his home in New York, September 1.

John Emmett Thompson, M.D. Western Reserve University, Cleveland, Ohio, 1888; aged 56; of Oakland, Calif.; formerly a Fellow of the American Medical Association; a member of the Medical Society of the State of California; died in Berkeley, Calif., about August 29.

Albert David James, M.D. Miami Medical College, Cincinnati, 1880; aged 58; for fifteen years president of the Board of Pension Examiners of Morrow County, Ohio; and a practitioner of Mt. Gilead; died at his home in Columbus, August 29, from cerebral hemorrhage.

William Harrison Rosser, M.D. State University of Iowa, Iowa City, 1861; aged 78; assistant surgeon of the Forty-Sixth Iowa Volunteer Infantry during the Civil War; a life-long resident of Davis County, Ia.; died at the home of his daughter in Troy, Iowa, August 12.

Louis B. Arceneaux, M.D. Tulane University, New Orleans, 1891; aged 46; a Fellow of the American Medical Association; a practitioner and druggist and president of the Board of Health of Church Point, La.; died in a sanatorium in Chicago, September 4.

Isaac G. Gee, M.D. Eclectic Medical Institute, Cincinnati, 1865; aged 74; first vice president of the Third National Bank, Mt. Vernon, Ill., and president of the Waltonville Bank, and an extensive land owner; died at his home in Mt. Vernon, September 2.

David M. Buley, M.D. University of Louisville, Ky., 1889; for many years a practitioner of Vincennes, Ind.; formerly a member of the Indiana State Medical Association; died at his home in Crandell, Ind., August 25, from cerebral hemorrhage.

Andrew J. Richardson, M.D. Starling Medical College, Columbus, Ohio, 1869; aged 87; for fifty years a practitioner of Union County, Ohio; died at the home of his daughter, in Somerville, Ohio, August 23, from senile debility.

James Fletcher McDougald, M.D. Howard University, Washington, D. C., 1895; a colored practitioner and druggist of Atlanta; physician to the McVicar Hospital; died while being taken to the Grady Hospital, Atlanta, August 28.

Comfort Edson Peck, M.D. University of Buffalo, 1873; Bellevue Hospital Medical School, 1879; aged 69; for thirty years vice president of the Bowman Dairy Company, Chicago; died at his home in Highland Park, Ill., September 2.

James G. Kincaid, M.D. Georgia College of Eclectic Medicine and Surgery, Atlanta, 1904; aged 45; for two terms mayor of Pine Park, Ga.; died at his home in Pine Park, Ga., August 27, from cerebral hemorrhage.

William P. Marshall, M.D. Ohio Medical University, Columbus, Ohio, 1894; aged 71; for many years a practitioner of Long Point, Ill., and later of Oklahoma City; died at his home in the latter city, July 31.

James Harvey Witherspoon, M.D. Medical College of the State of South Carolina, Charleston, 1866; aged 76; for several years a practitioner of Rock Hill, S. C.; died at his home in York, S. C., August 20.

Daniel B. Mory, M.D. Medical College of Ohio, Cincinnati, 1882; aged 54; formerly a practitioner of Wilmington, Ohio, and Joliet, Ill.; died at his home in Springfield, Ohio, August 28.

Charles H. Copp, M.D. Hahnemann Medical College, Chicago, 1882; aged 60; formerly a practitioner of Atchison, Kan.; died at his home near Rosalia, Kan., August 11, from dropsy.

Wallace A. Carter (license Arkansas, 1903), also a druggist; aged 84; for more than sixty years a resident of Ozark, Ark.; died at his home in Ozark, August 21.

George Ross Blickensderfer, M.D. Barnes Medical College, St. Louis, 1896; aged 44; of Maud, Okla.; dropped dead on a street in that city, August 8.

Jesse W. Lane, M.D. Vanderbilt University, Nashville, Tenn., 1886; aged 59; of Fayette, Ala.; died in an infirmary in Birmingham, Ala., August 17.

Richard Coulson, M.D. Tufts Medical College, Boston, 1903; aged 39; died at his home in Tucumcari, N. M., August 24, from heart disease.

John Kinnier Crawford, M.D. Jefferson Medical College, 1894; aged 48; died at his home in Philadelphia, August 1, from chronic nephritis.

Ambrose A. Hill, M.D. New York Homeopathic Medical College, New York City, 1866; died at his home in Merritt, Fla., August 21.

Frank Austin Bowman, M.D. Cooper Medical College, San Francisco, 1892; aged 62; died at his home in San Francisco, August 17.

Saxon Dillard, M.D. Hospital College of Medicine, Louisville, Ky., 1876; aged 61; died at his home in Haynesville, La., August 23.

Thomas D. Ross, M.D. Detroit College of Medicine and Surgery, 1888; died at his home in San Luis Obispo, Calif., August 13.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

ARTICLES REFUSED RECOGNITION

Report of the Council on Pharmacy and Chemistry

Below appear abstracts of the Council's actions on articles refused recognition which were not deemed of sufficient importance to require lengthy reports:

Filudine

Filudine is said to be prepared by J. L. Chatelain, Paris, and is sold in this country by Geo. J. Wallau, Inc., New York. It is offered as a remedy for "biliary insufficiency," "hepatic insufficiency," "intestinal dyspepsia," "all affections of the liver (diabetes, cirrhosis, cancer, etc.)," "malaria," "obesity" and "tuberculosis."

No quantitative information is furnished as to the composition of the preparation and there are noteworthy discrepancies in the various statements regarding the ingredients. In one number of "Treatment," a self-styled "Review" of medical literature (actually devoted to advertising the preparations sold by Wallau), we are told that

"This product [Filudine] is a more concentrated and potent extract of the liver, with which is combined an extract of the spleen. The liver and the spleen are so intimately interdependent, that the addition of a splenary extract to the liver extract is a signal improvement from which a synergistic action results. Thiarféine is also added, as it helps somewhat to combat the anaemia from which all diabetics suffer more or less."

Thiarféine is said to be

"Thiomethylarsinate of Caffein, a new salt discovered by M. Chatelain."

Another circular, which gives an imposing formula for "thiarféine" or "thiomethylarsinate of caffein," states that

"Sulphurated methylarsinate is an arsenical preparation devoid of all toxicity on account of the intimate joining of its composing parts."

And that

"Filudine can never be contraindicated . . ."

A statement of composition in a later number of "Treatment," however, says that biliary extracts are components, in addition to the liver and spleen extracts. Moreover, thiarféine, the "new salt discovered by M. Chatelain," is no longer "thio-methyl arsinate," but "thio-cinnamate of caffein"; and a new formula is furnished for it.

We are told that

"Methyl-arsinate cannot be used in cases where fever is present. . ."
"M. Chatelain at first studied the action of thiomethylarsinate; clinical and physiological experimentation led him, however, to adopt thio-cinnamate of caffeine, of greater activity and with no contraindications."

Nevertheless the same absence of contraindications was urged in favor of Filudine when it was said to contain the now discarded thio-methylarsinate of caffein.

The following are some of the unwarranted and even absurd claims:

"Filudine restores the liver's functions. It is to the liver what digitalis is to the heart; it overcomes the insufficiency and stimulates the debilitated organ."

In malaria "it is the only true specific when associated with quinine."

"Filudine is . . . the ideal medication for tuberculosis, conforming as it does with the most recent researches in the therapeusis of this affection."

"We will not go as far as to say that Opotherapy *completely restores* unhealthy livers, for although the lesions of the hepatic parenchyma may be obliterated by regeneration, the lesions of the connective tissues are permanent, and may be observed at the postmortem examination. The new cells however do not present the same unhealthy conditions as those of the former diseased gland which they have replaced, and

the liver can therefore function normally, so that the patient lives on; and he is satisfied with that."

"Therefore, while regenerating the liver with Filudine, we cleanse it and combat its congested state with Urodonal. We cause it to produce urea from the excess of uric acid which it contains."

"By the judicious and harmonious combination of the beneficial effects of Filudine and Urodonal, physicians not only possess the means of treating by rational methods Cirrhosis of the Liver in its various forms (which is one of the most terrible diseases which can afflict anyone) but what is still better, *they can cure it.*"

"The liver of a person suffering from obesity being incapable of fulfilling its functions in regard to the fatty tissues, the rational and up-to-date method of treatment is therefore to restore to the system, in the form of Filudine, the liver extracts which are lacking."

Filudine is a mixture of semisecret composition. The therapeutic claims are manifestly unwarranted. The name is not indicative of the composition, whatever that may be, and no rational excuse is offered for the combination of liver and spleen extracts (with or without bile extracts) with "thio-methyl arsinate" or "thio-cinnamate" of caffein.

The Council therefore held Filudine ineligible for New and Nonofficial Remedies.

Globeol

Globeol is prepared by J. L. Chatelain, Paris, and sold in this country by Geo. J. Wallau, Inc., New York. It is advertised in a pamphlet also exploiting Urodonal, Jubol and Filudine. It is open to the same objections as these preparations—incomplete statement of composition, pseudoscientific statements of its actions and absurdly exaggerated statements of its value.

Globeol is thus described in a pamphlet:

"Globeol is the total extract of the red globules with the exception of its outer portion, and is obtained by powerful centrifugalization of the blood mixed with 20 parts of isotonic liquid, and subjected to several successive refrigerations in vacuum. . . .

"The blood used is obtained from young and healthy horses, after they fasted and rested on the previous day. The serum is put aside and desiccated in vacuum at a low temperature. The dry serum obtained in the shape of an amber yellow powder, is mixed with Globeol. In it are to be found in their full activity such bodies as precipitins, agglutinins and antitoxin, as well as internal secretions of organs arousing certain glandular synergies.

"Moreover, the action of Globeol has been strengthened by the presence of colloidal iron and colloidal manganese (which supply the deficiency in mineral salts) and also by the addition of a very small quantity of quassia as a means of preparing the digestive organs for the absorption of more food."

When the description is divested of obscuring verbiage, Globeol appears to be evaporated horse blood, mixed with small quantities of colloid (dialyzed?) iron and manganese, and a dash of quassia. No information is given as to the quantities of these ingredients.

A mixture of this kind should act like a simple hematinic. Since every physician knows the value and limitations of the hematinics, and has a wide choice of standard and efficient articles, there is no necessity of employing a complex substance of unknown composition unless it has some real advantage. Accordingly, the superstitious awe of the blood as a most particular juice is invoked, and this is apparently illuminated by such terms as "protoplasmic pulp"; "blood ferments in their active state (oxydases, catalases, stimulins, etc.)"; "precipitins, agglutinins and antitoxin, as well as internal secretions of organs arousing certain glandular synergies"; "living ferments"; "energising substances of cellular activity"; "phagocytic microbes"; "vitalized" iron manganese; "positive chemotaxis"—in brief, "opotherapy of the blood by means of its active ferments"; but the exploiters forget to mention that these various "ins" and ferments, as well as the hemoglobin and proteins, are broken down in the digestive tract and never reach the blood. Most fortunately; for if they did so, the Globeol would certainly play havoc with the patient.

It is difficult to preserve patience when such dense ignorance is shown in the "literature" that presumes to instruct the profession.

The therapeutic claims and testimonials may be dismissed by citing a few illustrations, plainly in conflict with Rule 6:

Court.
BUSINESS NOTICE.
BELL-ANS
Absolutely Removes Indigestion. One package proves it. 25c at all druggists.
New York Medical Journal
Philadelphia Medical Journal & Medical News
NEW YORK, SATURDAY, AUGUST 28, 1915
BELL-ANS
A New York City doctor writes: "May I ask you for some more BELL-ANS tablets for my own use. I call them in my practice 'Life-savers'."

TWO REASONS FOR THE PERPETUATION OF THE "GREAT AMERICAN FRAUD"

"These ingredients, when introduced in the blood, impart to it renewed strength, and augment the patient's vitality. He feels as if he were resuscitating."

"Microbes secrete poisons which are very dangerous, and the human organism endeavors to combat these poisons by natural means. The faculty is however very much impaired in the case of debilitated, run-down or over-worked persons. Globeol, by introducing anti-toxins into the blood, combats the noxious microbes of affinity called "Positive Chemotaxis," besides stirring up the protective faculties of the tissues by favouring the formation of their own anti-noxious elements. This action is further increased by the presence of colloid minerals, which, as is perfectly well known, are endowed with a well determined anti-toxic faculty."

"It is a remedy for anemia and chlorosis, and a sovereign cure in all cases of organic decomposition arising from any cause whatsoever, whether it be overwork, too rapid growth, convalescence, scrofula, tuberculosis, ataxia, cancer, diabetes, cerebral anemia (anemia of the brain), malaria, general and nervous debility, etc."

"The invasion of the system by the tuberculous poison, that is, by the toxins which the bacillus of Koch produces, is overcome by means of the anti-toxic ferments in the red corpuscles which are contained in globeol in a state of activity, and which render inert the toxic action of the microbes."

"Physicians who have tested the value of Globeol, agree in saying that all healthy individuals should take a course of Globeol in spring and autumn as a preventive, in order to stimulate the production of blood, strengthen the system, and by invigorating it, enable it to resist the attacks of disease."

"Neurasthenia cannot resist Globeol, and I have seen numerous cases of rapid and permanent cure."

The Council declared Globeol ineligible to N. N. R. because it conflicts with Rules 1, 6, 8 and 10.

VERLIE GATLIN'S WRINKLE REMOVER

One of the Biel Group of Medical Frauds

The "Verlie Gatlin Beauty and Wrinkle Treatment" was a Denver mail-order concern owned and conducted by one Conrad E. Biel. Biel and his wife have also been engaged in other fraudulent schemes such as "obesity cures," "flesh builders," "weak men tablets," "cures for baldness," etc. According to the advertisements, the Verlie Gatlin treatment:

"Will banish wrinkles and face lines; will restore complexion; will remove superfluous hair from face, hands, arms or neck; will develop the bust and restore fallen or sunken breasts; will remove facial blemishes."

Biel appealed to the vanity and cupidity of silly women in this way:

"Learn how to regain your lost youthfulness and lovely complexion, how to make yourself Beautiful, lovable, envied by all."

Biel advertised—under the name "Verlie Gatlin"—that he would send free to all that wrote the "wonderful secret" of

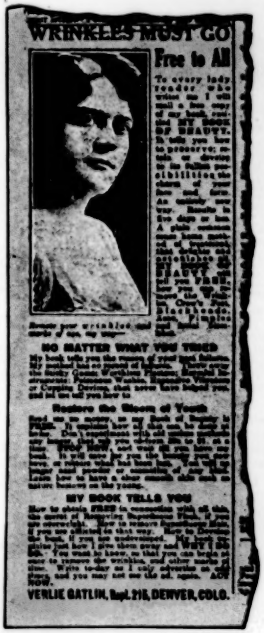
The Biel concern not only "removed wrinkles," it also "cured" leanness, fatness, "weakness" and baldness!

the "Verlie Gatlin Treatment." Those who answered the advertisement received not the "secret" but a more elaborate advertisement in the form of a booklet. It contained an alleged history of the "discovery" of the remedy by Verlie Gatlin, and was illustrated with pictures purporting to show Verlie's appearance before and after using the "treatment." The booklet and other circular matter sent out represented that the Verlie Gatlin treatment was different from all other preparations on the market sold for the same purpose and that it was practically infallible, so that any one who purchased it and used it without success might obtain a refund of the purchase price. Special emphasis was laid on the claim that the buyer was taking no risk because of the guarantee that the money would be refunded if the "treatment" did not accomplish all that was claimed for it within fifteen days.

The concern was investigated by the federal authorities with the result that the solicitor for the Postoffice Department recommended that a fraud order be issued against Biel and the Verlie Gatlin concern because the scheme was one "for obtaining money through the mails by means of false and fraudulent pretenses, representations and promises." The solicitor's memorandum to the Postmaster-General, after setting forth the facts just described, continues:

"The evidence shows that the treatment so sold consists of a powder and a cleansing and emolient cream and a complexion mask to be worn during sleep. The ingredients of the powder and creams are well known and the whole method is one that is generally known and commonly used for the purposes for which prescribed. For this treatment Mr. Biel obtains remittances of five dollars ($5). That the treatment has not the efficacy pretended is shown by correspondence had by the inspector with persons who had used it. . . ."

"The main inducement by which this treatment is sold is the refund guarantee. The evidence shows that this guarantee is not kept in good faith. When a communication is received by Biel, in which the writer alleges that she purchased the treatment and was not satisfied therewith, it is his practice to advise the writer that her complaint will be given prompt attention and then to fail to make any further reply to the communication unless the purchaser is persistent and writes again. In that event, it is the practice of Biel to ask the purchaser to state in what particulars the treatment was unsatisfactory and unless this information is forthcoming he fails to pay further attention to the complaint. Other letters from the purchaser are met with dilatory communications of the same nature; and the complaints in the case show that it is not the intention of Biel to make any refund except in cases where threats are made to report the matter to the Postoffice Department or to take other drastic action."


WRINKLES MUST GO
Free to All
NO MATTER WHAT YOU TRIED
Restore the Charm of Youth
MY BOOK TELLS YOU
VERLIE GATLIN, Dept. 218, DENVER, COLO.

A typical Verlie Gatlin advertisement.

VERLIE A FIGURE-HEAD

Although all the advertising matter, either definitely or inferentially, stated that Verlie Gatlin was the "discoverer" of the "treatment," and while all of the circular letters sent out were signed "Verlie Gatlin" and the printed return envelopes sent to prospective victims were addressed to "Miss Verlie Gatlin (Personal)" investigation showed that Verlie Gatlin had practically nothing to do with the business. To quote further from the solicitor's memorandum:

"The evidence shows further that this treatment was not discovered by Verlie Gatlin and was never used in good faith by her. The whole enterprise is one of Biel's conception, Verlie Gatlin, who is now Mrs. Virgil E. Truitt, having no other connection with the company than to lend her maiden name to its promotion and to permit Biel to use her photographs in the exploitation of this treatment, under a contract which was entered into by her and Biel, after she had responded to an advertisement for a woman to pose for pictures to be used in advertising. Under this contract, she was to be paid $25 for the use of her photograph and 2 per cent. of the net profits of the business.

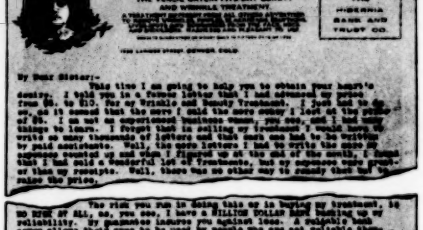
"The photographs used in the advertising matter of the company were so taken as to make it appear as though Mrs. Truitt were quite homely before using the treatment and beautiful thereafter, when in fact her appearance was the same when she posed for each photograph. The intent with which this scheme was devised is indicated by the fact that Mr. Biel had Mrs. Truitt use this treatment one night in order that she might truthfully say that it had been used by her."

The solicitor's report closes as follows:

"On Oct. 14, 1914, Biel was indicted by the Federal Grand Jury at Denver, Colo., on the charge of using the mails in the furtherance of a scheme to defraud in connection with this business, and is now held under bond awaiting trial. The postmaster at Denver, reports that this concern and party are receiving daily an average of forty letters.

"I find that this is a scheme for obtaining money by means of false and fraudulent pretenses, representations and promises, in violation of Sections 3929 and 4041 of the Revised Statutes as amended, and therefore recommend that a fraud order be issued against Verlie Gatlin and Verlie Gatlin Company at 1755 Larimer Street, Denver, Colo."

The fraud order was issued Jan. 2, 1915.


VERLIE GATLIN CO.
THE VERLIE GATLIN FIVE-DAY BEAUTY AND WRINKLE TREATMENT
THE HIBERNIA BANK AND TRUST CO.
1755 LARIMER STREET DENVER COLO
By Dear Sister:-
This time I am going to help you to obtain your heart's desire. I told you in a former letter that I had advanced my price from $5. to $10. For my Wrinkle and Beauty Treatment. Just to do so, as it seemed that the more I sold the more money I lost at the price of $5. I am not an experienced business man, you see, and had many things to learn. I thought that in selling my treatment I would receive so many thousands of letters and that most one had to be written by paid assistants. Well, the more letters I had to write the more my expenses counted up and when I figured up at the end of the month, I found that I sold a wonderful lot of treatments, but my expenses were greater or than my receipts. Well, there was no other way to remedy that but to raise the price.
The risk you run in doing this as to buying my treatment, is no more at all, as, you see, I have a MILLION DOLLAR BANK behind me as reliability. My guarantee insures you against loss. A palpable hold other claims that seem to be used by people that are not reliable theatrical

Mail-order fakers not infrequently use the name of banks to lend an air of respectability to their fraudulent business. Above is a reproduction (greatly reduced) of a typical form-letter sent out by the Verlie Gatlin concern. Notice that the letterhead states that the Verlie Gatlin Company has permission to use as a reference the Hibernia Bank and Trust Company; notice also the statement in the lower paragraph.

Correspondence

The Horowitz-Beebe Cancer Cure—A Disclaimer

To the Editor:—The following statement of facts in THE JOURNAL is imperative because of the unwarranted use of my name in the exploitation in a popular lay periodical of a preparation for the treatment of inoperable cancer.

Some nine weeks ago I was informed by Dr. S. P. Beebe of New York City that he had a preparation to which the name of "Autolysin" had been given which in his opinion was of benefit in the treatment of inoperable malignancy. He stated that it was his desire to have men who have made a special study of clinical cancer work with the material, so that he might more quickly and more definitely arrive at conclusions concerning its ultimate value.

Believing that anything that offers aid to the sufferer from inoperable cancer should be given a fair trial, if it originates from a competent authority, I was glad to cooperate in testing out the merits of this preparation and, after starting its use, wrote to Dr. J. Wallace Beveridge, an associate of Dr. Beebe's, a letter in which I described the class of cases in which I had begun their treatment. This letter was a personal communication from one physician to another and at the end of the description of each case a few comments were made concerning any change in the patient's condition either observed or thought to have been observed.

Entirely unknown to me, this letter was quoted in the article in the magazine above referred to, and was so abstracted as to make it appear to be a testimonial. Inasmuch as my letter was written within one week after beginning trial of "Autolysin" and only to show the class of cases in which it was being employed, its use in this manner was deliberately misleading.

Again, inasmuch as my letter was a personal one from myself to Dr. Beveridge, its use must have occurred with the knowledge of someone of their office force.

Because of the unjustifiable use of my name in connection with this unwarranted and unethical exploitation, I will deem it a great favor if you will give space to the above.

J. WALTER VAUGHAN, M.D., Detroit.

Our First Vital Statistics Law

To the Editor:—I think many of your readers will be interested in the following quotations of sections from Locke's "Fundamental Constitutions," which was the famous constitution prepared by the celebrated philosopher and student of government for the new colony of North Carolina in 1669. It is unquestionably the first effort made to make the collection of vital statistics a constitutional obligation on the part of a state to its people.

J. HOWELL WAY, M.D., Waynesville, N. C.

84th. There shall be a Registry in every Signiory, Barony and Colony, wherein shall be recorded all the births, marriages and deaths that shall happen within the respective Signiories, Baronies and Colonies.

85th. No man shall be Register of a Colony that hath not above fifty acres of freehold within the said colony.

86th. The time of every one's age, that is born in Carolina, shall be reckoned from the day that his birth is entered in the registry, and not before.

87th. No marriages shall be lawful, whatever contract and ceremony they have used, till both the parties mutually own it, before the Register of the place where they were married, and register it, with the names of the father and mother of each party.

88th. No man shall administer the goods, or have a right to them, or enter upon the estate of any person deceased, till his death be registered in the respective registry.

89th. He that does not enter in the respective registry, the birth or death of any person that is born, or dies, in his house or ground, shall pay to said Register one shilling per week for each such neglect, reckoning from the time of each birth, or death respectively, to the time of entering it in the register.

90th. In like manner, the births, marriages, and deaths of the Lords, Proprietors, Landgraves and Casiques, shall be registered in the Chamberlain's Court.—(See Colonial Records of N. C., Vol. 1, p. 201.)

The So-Called New Antiseptic

To the Editor:—Your editorial in THE JOURNAL, Sept. 4, 1915, speaks of the "so-called new antiseptic" produced by a watery mixture of the commercial chlorid of lime with sodium carbonate. Your limitation "so-called" is correctly used, for I and other surgeons of the New York and Roosevelt hospitals can testify to the germicidal use of this mixture as far back as 1894. This preparation was suggested by Mr. Rauschenburg, the apothecary of the New York Hospital, and was used entirely for hand and operative area disinfection for many years, and was continued as a hand disinfectant even after rubber gloves came into vogue to guard against infection by the punctures or tears to which such protectors are liable. For the operative area it held good until about 1900, when tincture of iodin was first employed for this purpose at the Roosevelt Hospital for all laparotomies and joint operations. In the hand disinfection by the chlorin mixture, the culture test of nail scrapings showed 95 per cent. of germ-free results.

ROBERT F. WEIR, M.D., New York.

[COMMENT.—The mixture indicated by Dr. Weir is evidently the Labarraque solution mentioned in the editorial. This solution has been used for many years, as Labarraque lived from 1777 to 1850. The novel feature of the preparation elaborated by Dr. Dakin is the acidity secured by adding boric acid in excess to the Labarraque mixture.—ED.]

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

PRESERVING PATHOLOGIC SPECIMENS

To the Editor:—What is the best method of preserving pathologic specimens so they will retain the appearance shown at the time of removal? Please give formulas for preparing the solutions used.

C. A. RIEMCKE, M.D., Selah, Wash.

ANSWER.—Of the usual methods of preserving pathologic specimens, in 10 per cent. dilution of liquor formaldehydi, in alcohol, or in Kaiserling's fluid, the last-named is the most satisfactory. Even this method often fails to retain faithfully the natural color and appearance of the fresh specimen. This much desired effect is, however, fully obtained by a simple modification of Kaiserling's method, advocated by Flint and Kellner (A New Preservative for Pick-Kaiserling specimens, THE JOURNAL, April 27, 1912, p. 1277), and sufficiently tested in the best laboratories to guarantee its unfailingly good qualities.

The specimens are trimmed and dissected to get them into good shape, and placed into:

Solution 1—

Formaldehyd	200 c.c.
Water	1,000 c.c.
Potassium nitrate	15 gm.
Potassium acetate	30 gm.

In this they are left for from three to ten days, according to the size of the specimen. To prevent flattening, cotton may be placed on the bottom.

Solution 2—

80 per cent. alcohol for from one to six hours to restore color.

Solution 3—

Glycerin	50 per cent.
Water	50 per cent.

Solution 4—

Glycerin (100 per cent.) until the specimen sinks.

Solution 5—

Liquid petrolatum, light or heavy. The former is the better grade.

It is advisable to use stock jars for both the glycerin and the oil immersion, and to transfer the specimen into the permanent jar containing liquid petrolatum after the glycerin is removed. To allow the latter to fall to the bottom, the specimen is supported by some device, such as a wire net or wool glass. The liquid petrolatum does not deteriorate, and may be used over and over again. After six months the jar may be cloudy, while the liquid petrolatum is absolutely clear, and needs only to be cleaned.

Specimens so preserved appear as they were when removed from the body. Although lacking to some degree the advantage of the liquid petrolatum, the Kaiserling method still enjoys continued use. The procedure is as follows: Steps 1 and 2 are the same as in the method given above. The specimen is then placed in the preserving fluid.

Potassium acetate	200 gm.
Glycerin	400 c.c.
Water	2,000 c.c.

Camphor, thymol or phenol (1 per cent.) added to this solution will prevent the growth of molds. It is advisable to avoid exposure to light during the process of fixation, and in keeping of the specimens.

Cysts, if small, may be placed with their content undisturbed into 10 per cent. dilution of liquor formaldehydi; if large, some of the fluid is aspirated and replaced by enough of the full strength liquor formaldehydi to make a 10 per cent. solution of the cystic fluid.

Fresh brains are hardened for from two to three weeks in:

Formaldehyd	20 per cent.
Saturated solution of sodium chlorid	25 per cent.
Water	55 per cent.

To prevent flattening, cotton is placed on the bottom of the jar. The brain is then transferred into 10 per cent. dilution of liquor formaldehydi.

Day (An Improved Method of Mounting Museum Specimens, *Tr. Chicago Path. Soc.*, 1913, ix, 106) has given an excellent method of mounting specimens under watch glasses in Kaiserling's fluid. Such mounts are permanent, occupy a small space and are easy to handle and transport.

Bones are left in standing water, when by autolysis the organic constituents and the bone marrow are removed. They are washed in running water, scraped and thoroughly cleaned, and thereupon subjected to the action of benzin vapor, in order to remove the fat and whiten the bone.

A special apparatus is to be used in this process to prevent any danger from fire. The benzin is best distilled in steam. The bones are finally dried in the sun.

LACTOBACILLINE PREPARATIONS OF THE FRANCO-AMERICAN FERMENT COMPANY

To the Editor:—Please inform me concerning the use of the Bulgarian bacillus preparations sold by the Franco-American Ferment Company as a remedy for diabetes.

L. G. RICE, M.D., Albuquerque, N. M.

ANSWER.—Riesman says, referring to a favorable report by Horowitz on the use of Bulgarian bacillus preparations for this purpose:

> Lactic acid bacilli have been recommended for nearly every ill that flesh is heir to, including diabetes. The drug manufacturers have not been slow in seizing the psychological moment and putting upon the market innumerable preparations containing various strains of these bacilli. Quite recently the Bulgarian bacillus has been proposed as a remedy for diabetes, but so far no scientific study of the subject has appeared; moreover, it is *a priori* unlikely that it will have any special virtue in the curing of the disease.

About two years ago the Lactobacilline preparations of the Franco-American Ferment Company were admitted to New and Nonofficial Remedies after this company had withdrawn practically all of its unsatisfactory advertising matter. Recently the Council has voted to dismiss this firm's preparations from New and Nonofficial Remedies, adopting the following report:

> The Franco-American Ferment Company has advised the Council on Pharmacy and Chemistry that, in advertising its products, it will no longer conform to the rules of the Council. This is evident. The Franco-American Ferment Company has distributed circulars in which the public is informed that autointoxication is the cause of innumerable ills ranging all the way from arteriosclerosis, rheumatism and gout to chronic headache, odorous perspiration, nervous disorders and melancholia; that the Bulgarian bacillus "is a wonderful corrective or remedy" for all these conditions, and that the Lactobacilline products are the only preparations of Bulgarian bacillus "to be had in America which bear his [Professor Metchnikoff's] personal endorsement"—by inference, the only reliable products. In view of the action of the Franco-American Ferment Company, and of the tendency of their advertising to cause the public to exaggerate slight ailments into alarming conditions, the Council has voted that the several Lactobacilline products of this concern be deleted from New and Nonofficial Remedies.

LITERATURE ON RADIOACTIVE WATERS

To the Editor:—Please give a list of articles on the use of radioactive waters for drinking and bathing purposes.

C. W. LIEB, M.D., Watkins, N. Y.

ANSWER.—The following list of references to articles published during and since 1911 may be referred to:

Hirz, F.: Subcutaneous Injection of Natural Radio-Active Mineral Water, *München. med. Wchnschr.*, Jan. 10, 1911.
Kionka, H.: Radioactivity of Mineral Waters, *Deutsch. med. Wchnschr.*, April 27, 1911; abstr., THE JOURNAL, June 3, 1911, p. 1693.
Nenadovics: Radio-Active Mineral Water in Internal Disease, *Therap. Monatsh.*, June, 1911.
Burnham, A. C.: Radioactive Waters in Treatment of Gout, *Med. Rec.*, New York, Jan. 30, 1912.
Lowe, T. P.: Radium Emanation in Mineral Waters, *Brit. Med. Jour.*, April 20, 1912; *Lancet*, London, April 20, 1912; abstr., THE JOURNAL, May 18, 1912, p. 1545.
Lazarus, P.: Radium Emanation of Radio-Active Waters, *Med. Klin.*, July 14, 1912.
Kisch, E. H.: Overestimation of Radio-Activity as the Potent Element in Mineral Waters, *Med. Klin.*, May 11, 1913.
Field, C. E.: Efficiency of Radio-Active Waters for Control of Faulty Elimination, *Med. Rec.*, New York, March 6, 1915.
Tracy, S. G.: Recent Applications of Radium Emanations and Radium Water, *New York Med. Jour.*, March 27, 1915.

VON LEUBE TREATMENT OF GASTRIC ULCER

To the Editor:—Please describe von Leube's treatment of gastric ulcer.

J. W. SHUMAN, M.D., Sioux City, Iowa.

ANSWER.—The von Leube ulcer treatment lays emphasis on diet, on saline laxatives, and the application of heat to the epigastrium.

One tablespoonful of the saline laxative is dissolved in 1 pint of warm water. The patient drinks 125 c.c. of this each ten minutes until all is taken. Then in half an hour breakfast

is eaten. If one or two watery discharges do not result, the dosage of the salt should be regulated accordingly.

Special methods are recommended in applying heat to the epigastrium. Mustard poultices are used, but the constant changing of the poultice may be avoided by using an electric pad. This method of treatment is gradually discontinued after from twelve to fourteen days. Blisters are no indication for stopping it.

During the first thirteen or fourteen days of treatment, the following diet is prescribed: 1½ quarts of milk, 200 gm. of zwieback and 1 pint of meat solution, this given as six feedings of 250 c.c. each, the first at 7 a. m. and the last feeding at 6 p. m. The meat solution is prepared by digesting beef with a strong acid solution of pepsin in hermetically sealed vessels at higher than body temperature. One pint contains one-half pound of beef. To this may be added, if the patient desires, a small quantity of beef extract and table salt. It gives 1,800 calories of heat per day, and if rest in bed is enforced, is sufficient to maintain the body weight.

After the fourteenth day the patient is allowed up, and is given a light diet of pigeon, chicken, purée of potatoes, thicker soups, wheat bread, etc. Eight days later the return to coarser foods is gradually effected. All foods are given lukewarm.

Patients with bleeding ulcers are given absolute rest in bed for two or three weeks. For the first three days they take nothing by mouth, but are given two daily nutrient enemas, each containing 250 gm. of milk, two or three eggs and a pinch of salt. On the fourth day the feedings are commenced as above. A Priessnitz compress is kept on the epigastrium. This is the treatment in brief. It has not been generally adopted.

AXILLARY HAIRS AND PERSPIRATION

To the Editor:—Recently there have been advertised razors for shaving axillary hairs. This has given rise to numerous questions on the subject:

1. Why are there hairs in the axilla?
2. Will it do any harm to remove these hairs?
3. When a woman insists that she will remove the hairs from the axilla, which will be the best way to do it: with a razor or by using a depilatory?
4. Is it advisable to use any of the preparations now on the market which tend to stop perspiration under the arms?
5. What harm will come of stopping perspiration which normally comes under the arms?

R. H. HUNT, M.D., Bartlett Springs, Calif.

ANSWER.—1. Axillary hairs are probably a vestige of a former hairy coat. The axillary hairs grow at puberty, as do the pubic hairs, and the beard in man.

2. There is no harm in removing the hair, except the slight irritation which may occur, and the coarser growth which will subsequently develop.

3. There is no objection to removing the hair with a depilatory, provided its use does not produce dermatitis. The razor seems less open to this objection.

4. There is no objection to using applications to stop perspiration, except that those which are effective are frequently irritating and cause dermatitis. Very few of them are at all effective.

5. No harm comes from stopping the perspiration under the arms; that is, there is no damage in the failure of this limited excretion of sweat.

HEALTH OF PHYSICIANS

To the Editor:—I wish to get facts and statistics concerning the doctor's health. Can you suggest any information along this line as to diseases and causes of deaths of physicians?

C. A. HAFF, M.D., Northampton, Pa.

ANSWER.—For several years THE JOURNAL has listed a summary of the deaths of physicians in the United States, with an analysis of the cause of death. This appears in the editorial pages either in the first or second number of January of each year, for 1913, 1914 and 1915, in the issues for January 4, January 10 and January 2, respectively. References to other articles follow:

Physicians and the Nervous Life, editorial, THE JOURNAL, Aug. 31, 1912, p. 727.

Tuberculous Morbidity Among Physicians and Nurses, Berlin Letter, THE JOURNAL, July 5, 1913, p. 50.

Simms, B. B.: Drugging Habit of Busy Practitioner, *South. Med. Jour.*, November, 1913.

Dublin, L. I.: Incidence of Tuberculosis Among Physicians and Nurses, *Jour. Outdoor Life*, June, 1914.

Vierordt, H.: Causes of Death of Prominent Physicians of History, *Med. Klin.*, May 9, 1915.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARIZONA: Phoenix, October 5-6. Sec., Dr. John Wix Thomas, 200 National Bank of Arizona Bldg., Phoenix.

COLORADO: Denver, October 5. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

DISTRICT OF COLUMBIA: Washington, October 12. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.

GEORGIA: Atlanta, October 12. Sec., Dr. C. T. Nolan, Marietta.

IDAHO: Wallace, October 5. Sec., Dr. C. A. Dettmen, Burke.

ILLINOIS: Chicago, October 13-15. Sec., Dr. C. St. Clair Drake, Springfield.

IOWA: Des Moines, October 19-21. Sec., Dr. Guilford H. Sumner, State House, Des Moines.

KANSAS: Topeka, October 12-14. Sec., Dr. H. A. Dykes, Lebanon.

MICHIGAN: Lansing, October 12-14. Sec., Dr. B. D. Harison, 504 Washington Arcade, Detroit.

MINNESOTA: Minneapolis, October 5-8. Sec., Dr. Thomas S. McDavitt, 814 Lowry Bldg., St. Paul.

MISSISSIPPI: Jackson, October 26-27. Sec., Dr. E. H. Galloway, Jackson.

MISSOURI: Kansas City, September 28-30. Sec., Dr. J. A. B. Adcock, State House, Jefferson City.

MONTANA: Helena, October 5. Sec., Dr. William C. Riddell, Helena.

NEW JERSEY: Trenton, October 19-20. Sec., Dr. G. H. Norton, 429 E. State St., Trenton.

NEW YORK: Albany, Buffalo, New York, Syracuse, October 5-8. Mr. Harlan H. Horner, Chief, Examination Division, State Education Bldg., Albany.

OKLAHOMA: Oklahoma City, October 12. Sec., Dr. Ralph V. Smith, 502 Daniel Bldg., Tulsa.

PORTO RICO: San Juan, October 4. Sec., Dr. Quevedo Baez, Allen St., San Juan.

RHODE ISLAND: Providence, October 7-8. Sec., Dr. Gardner T. Swarts, State House, Providence.

UTAH: Salt Lake City, October 4-5. Sec., Dr. G. F. Harding, 407 Templeton Bldg., Salt Lake City.

WYOMING: Laramie, October 13-15. Sec., Dr. H. E. McCollum, Laramie.

Addenda to the Educational Number

Further information received shows that the University of Cincinnati College of Medicine should be included in the first column of page 705 of THE JOURNAL, Aug. 21, 1915 (the Educational Number), among the medical colleges which are requiring for admission two years of collegiate work, in addition to a four-year high school education.

The University of Alberta, Faculty of Medicine, Edmonton, Alta., offers the first three years of the five-year (not "four-year," as given on page 716) medical course, including the premedical science year.

Queen's University Faculty of Medicine, Kingston, Ont., according to its announcement for 1915-1916 (page 15) continues to give an M.B. degree after a four-year course, the first of which is devoted mostly to the premedical sciences. This is equal to only three years of strictly medical work as measured by the medical courses given in the medical colleges of the United States. It is also stated that the fifth year (fourth medical) may be spent by the student as an intern in an approved hospital. The hospital intern year, in medical colleges in the United States, follows the completion of four full years of medical study, not counting the year or years devoted to the premedical sciences.

Mississippi June Report

Dr. E. H. Galloway, secretary of the Mississippi State Board of Health, reports the written examination held at Jackson, June 15-16, 1915. The total number of subjects examined in was 8; total number of questions asked, 64; percentage required to pass, 75. The total number of candidates examined was 58, of whom 46 passed and 12 failed. One candidate was licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Atlanta Medical College	(1914) 79.5; (1915)	77, 81, 81, 84	
Chicago College of Medicine and Surgery	(1914)	78, 78	

University of Louisville (1915)	86
Tulane University of Louisiana (1915) 75, 75, 78, 79, 79, 80, 80, 81, 83, 83, 85, 86, 89, 90	
Johns Hopkins University (1915)	85
Jefferson Medical College (1914)	85.9
Lincoln Memorial University (1915)	80.8
Meharry Medical College (1913) 76, 77; (1915)	79
University of Tennessee (1914) 76, 78, 84; (1915) 78, 78, 80, 80, 80.5, 81, 83, 84, 85	
Vanderbilt University (1914)	75
University of Virginia (1915) 85, 86, 87	

FAILED

Birmingham Medical College (1914)	64
Atlanta Medical College (1915)	70
University of Illinois (1913)	72
Meharry Med. Coll. (1912) 62; (1913) 63; (1914) 61; (1915)	66, 73.6
Memphis Hospital Medical College (1902) 54; (1912)*	
University of Tennessee (1914)	60 †

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Memphis Hospital Medical College	(1910)	Arkansas

* Left the examination room on seeing questions.

† Did not complete the examination on account of sickness.

Pennsylvania June Report

Mr. N. C. Schaeffer, secretary of the Bureau of Medical Education and Licensure of Pennsylvania, reports the written examination held at Philadelphia and Pittsburgh, June 1-3, 1915. The total number of subjects examined in was 5; total number of questions asked, 50; percentage required to pass, 75. The total number of candidates examined was 233, of whom 209 passed and 24 failed. Two candidates were licensed by bedside examination and 11 through reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Total No. Licensed
George Washington University	(1914)	1
Chicago College of Medicine and Surgery	(1914)	1
College of Phys. and Surgs., Baltimore	(1912, 1) (1914, 4)	5
Johns Hopkins University	(1911, 1) (1914, 4)	5
University of Maryland	(1911, 1) (1914, 1)	2
Harvard University	(1909) (1913)	2
Univ. of Michigan, Homeo. Med. School	(1914)	1
St. Louis University	(1914)	1
Long Island College Hospital	(1912)	1
University of Buffalo	(1914)	1
Eclectic Medical College, Cincinnati	(1914)	1
Hahnemann Med. Coll. and Hosp., Philadelpnia	(1914)	5
Jefferson Medical College	(1912, 1) (1913, 3) (1914, 46)	50
Medico-Chirurgical Coll. of Phila.	(1913, 1) (1914, 40)	41
Temple University	(1914)	11
University of Pennsylvania	(1912, 1) (1913, 3) (1914, 28)	32
University of Pittsburgh	(1914)	41
Woman's Med. Coll. of Pennsylvania	(1913, 1) (1914, 3)	4
University of Virginia	(1914)	1

FAILED

Chicago College of Med. and Surg. (1914)	68.7, 70.7, 72.8
University of Louisville (1911) 60.3; (1912)	51.8
College of Physicians and Surgeons, Baltimore (1914)	72.3
Johns Hopkins University (1914)	73.6
Maryland Medical College (1912) 64.6; (1913)	62.4
Harvard University (1912)	72.2
Tufts College Medical School (1912)	73
Jefferson Medical College (1913) 74.4; (1914) 54, 69.1, 71.8,	73.8
Medico-Chirurgical College of Philadelphia (1914)	71, 72
Temple University (1913) 64.6, 73.6; (1914) 66.2,	73.6
University of Pittsburgh (1914)	69.8, 73

BEDSIDE EXAMINATION

Dartmouth Medical School (1893)	1
Albany Medical College (1897)	1

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Indiana University	(1910)	Indiana
Johns Hopkins University	(1902)	Maryland
Harvard University	(1907)	New Hamp.
University of Michigan Medical School	(1913)	Michigan
University of the City of New York	(1892)	W. Virginia
Jefferson Medical College	(1902) New Jersey; (1912, 2)	Missouri; N. Carolina
Medico-Chirurgical College of Philadelphia	(1912)	Vermont
Woman's Medical College of Pennsylvania	(1910)	Maryland
University of Virginia	(1907)	Virginia

Book Notices

SYPHILIS AS A MODERN PROBLEM. By William Allen Pusey, M.D., Professor of Dermatology in the University of Illinois. Price, cloth, 50 cents; paper, 25 cents. Pp. 129. Chicago: American Medical Association, 1915.

This book is a monograph reprinted from the Commemoration Volume issued by the American Medical Association "as a tribute to the medical sciences which made possible the building of the Panama Canal and the Panama Pacific Exposition."

The publication of this discussion of the present status of one of the so-called three great plagues—syphilis, tuberculosis and cancer—is opportune. Two decades ago tuberculosis, the fellow of syphilis in this triad of diseases, was as little understood by the everyday man as syphilis is today. In the comparatively brief interval of twenty years, a campaign of education and organized propaganda for the combating of consumption has transformed the situation. The forces of intelligent public opinion and of public and private funds, and the power of disinterested men and women have brought into being a great system of physical and educational aids for the tuberculous which have begun to realize their full possibilities. Against cancer our ignorance limits our capacity for effective control. Yet even in the case of cancer there are large endowments for study, and a consistent campaign for the better education of the public is under way.

Against syphilis, on the other hand, little or no social headway has been made. The confounding of the sanitary aspects of a communicable disease with questions of morals, and the effects of a traditional prudery have stifled advance in the social control of this disease. The United States is conspicuous in this backwardness. In strange contrast with this situation, medical knowledge of syphilis has advanced in the last decade with unparalleled rapidity. At the present time it is safe to rank the strategic position in regard to its sanitary control as equal to that for the control of malaria and yellow fever. In one direction, medicine holds syphilis in the hollow of its hand; two generations of intelligent attack could see it reduced to the status of a sporadic infection. In the other direction, the unwillingness to act of the public, on whom help depends, has prevented all organized effort for the control of this disease. Syphilis is a sanitary problem, that it must and will be solved by society sooner or later is inevitable. Its importance cannot be exaggerated! It breeds misery and perpetuates it. It is a source of public cost, a drain on human efficiency, and a stumbling block in the progress of mortality and decency whose all-pervading influence is appreciated only by those who work with it all the time. Into this situation, Dr. Pusey's book projects itself with a peculiar force. It considers syphilis from the standpoint of its effect on society; not as a disease which medicine is called on to treat. The whole subject is broadly sketched; its course and its pathology are given in sufficient detail to allow the reader to get a mental picture of the disease. Preceding this there are three chapters on the history of syphilis, the most complete statement of this subject in English, which furnishes a unique historical perspective. The rest of the book concerns the study of the general problems of syphilis; the prognosis of syphilis; syphilis and marriage; the etiology of syphilis, and the prophylaxis of syphilis. In these chapters, such subjects as the relative frequency of tabes and paresis, the effect of syphilis on length of life, the time when the syphilitic may marry, the prevalence of syphilis, its comparative frequency in men and women, the question as to whether or not syphilis is on the increase, and syphilis and prostitution are considered. The whole book is a foundation for the last chapter—the prophylaxis of syphilis. Here the author shows how syphilology has finally arrived at a point where the prevention of syphilis is practicable by sanitary measures. He points out what these measures are, and so furnishes the strongest argument for the inauguration of an organized sanitary attack on this disease.

The work is eminently sane and without sensationalism or exaggeration. It does not affront with needless horrors, nor is it written in the spellbinding style of campaign literature. The book is fitted to serve as a guide to a sustained and effective interest in the problem on the part of intelligent readers. It is not a medical textbook, nor is it a primer. It is intended for the intelligent lay reader, but it may be read with equal profit by the intelligent physician. It considers syphilis from a detached point of view, from which point the physician ordinarily does not think of it. It is filled with facts which are carried through to legitimate conclusions, and from which are deduced practical suggestions, and is worthy of the thoughtful consideration of intelligent men and women.

OUTLINES OF INTERNAL MEDICINE FOR THE USE OF NURSES. By Clifford Bailey Farr, A.M., M.D., Instructor in Medicine, University of Pennsylvania. Cloth. Price, $2 net. Pp. 408, with 76 illustrations. Philadelphia: Lea & Febiger, 1915.

This textbook is designed by the author to serve as a basis for the courses in medicine now being given in most training schools for nurses. It is also intended to serve as a reference work. Though internal medicine is specified in the title, the book deals with practically everything except surgical ailments. The author has been successful in giving the important points that the nurse should know without encroaching on the physician's sphere. The book is far superior to most works on practice of medicine for nurses. A nurse does not practice medicine; a well-trained nurse "never makes a diagnosis and never prescribes,"-facts of which most writers of textbooks for nurses appear to be ignorant.

Miscellany

Creating an Efficient Health Department

Springfield, Ohio, has the commission-manager form of municipal government. Dr. J. R. McDowell, in the *Ohio Public Health Journal* for July, describes the organization and operation of the health department, of which he has been made director, under this form of government. The usual board of health has been abolished, and the responsibility placed in the director. This, as McDowell believes, has removed the great stumbling blocks in the way of efficient health administration—boards of estimable leading citizens who are also dyed-in-the-wool politicians and who hand out health department "plums" with a string tied to them; boards composed of well-qualified physicians who cannot agree on any policy, or city councils which may leave the health department stranded high and dry for want of sufficient funds. The new government body provides budgets for each department, which means an equitable distribution of the revenues; the health department, which heretofore fared badly, now gets its fair share. Each commissioner is on a full-time basis which, McDowell says, is the greatest step toward efficiency. The full-time health officer is not handicapped by personal interest in his patients or by the fear of losing some good family. To him all physicians are on an equal footing. Another great advantage making for efficiency is that he has an incentive to prepare himself for the work. Salaries are not at present what they should be, but he believes that conditions in this respect will become satisfactory when the people realize the value of such health officers, and when men with a D.P.H. demand what is right and just for their services. The personnel of the department of Springfield (a city of about 50,000) consists of the director, assistant director, clerk, plumbing inspector, public health nurse and a Ford. A veterinarian dairy and food inspector and a school nurse were to be added, and private organizations contemplated employing a nurse for tuberculosis work and one for infant welfare work, all of whom were to be under the control of the health department. A laboratory has been provided in which all the usual examinations, bacteriologic, etc., are made; there is one free tuberculosis dispensary, and there is close cooperation with the dispensary at the city hospital and with the Associated Charities Clearing House, which is located in the city hall. A most satisfactory feature of the health organization which, McDowell says, could not be carried out so well under any other form of government, is the sanitary division, which makes use of the police patrolmen, who do nearly all of the sanitary work on orders from the health department through the city manager's office. The patrolman patrols not only the front streets, but also the back alleys and the back yards, and thus makes himself more efficient both as a guardian of the safety of the city and as a guardian of its health. This develops in the patrolman a sense of responsibility for the sanitary condition of his beat, and brings to attention many conditions which formerly would have been overlooked. At first the patrolmen were given fifteen-minute talks at roll call on the statutes and ordinances covering nuisances and other sanitary matters. All complaints are investigated and notices served by the patrolmen, who, McDowell says, are of as good intelligence as the average sanitary inspector. The plan has worked well.

Trachoma

Dr. J. W. Kerr, in *Public Health Reports*, August 20, gives a history of the fight against trachoma in the United States. Investigations inaugurated in 1897 in the immigration service led to the declaration by the surgeon-general that trachoma was a "dangerous contagious" disease, and during the past seventeen years all arriving aliens have been carefully examined for trachoma with a view to the exclusion of those infected. During that period, 11,966,897 immigrants were examined, and 22,984 trachoma cases were found. Official and nonofficial inspections and examinations abroad and at home reduced the number of cases in immigrants from 4 per cent. prior to in 1897 to 2 per cent. Canada followed the example of the United States, and also instituted an inspection service. Within the last few years, many cases of trachoma have been found in the United States not originating in the immigration service. Investigations along this line by McMullen and others of the Public Health Service in the Appalachian Mountains, in Kentucky, West Virginia, Virginia and the Carolinas, showed many trachoma cases among the inhabitants, and also among the Indians on various Indian reservations, in Oklahoma, Minnesota and other states. Among 192,788 white and colored persons examined to April 30, 1915, there were found 3,619 cases of trachoma, and among the 39,231 Indians examined to Dec. 30, 1912, 8,940 cases. Among the requirements set forth by Kerr for the improvement of trachoma conditions are the elimination of foci of the disease, and the improvement of community sanitation. It is said that trachoma is largely a disease of insanitary surroundings, and their abolishment will depend in a great measure on improving the social and economic conditions in infected communities. In bringing about these improvements, the education of children in individual prophylaxis is essential. Treatment is individual and surgical, and must be begun in a hospital. In the way of prophylaxis in the Appalachian Mountain region, five hospitals have been established, three in Kentucky, one in Virginia and another in West Virginia. In the three hospitals in Kentucky, available to the people in 10,000 square miles of territory, to May 1, 1915, 1,437 cases of trachoma had been treated, with a total of 18,860 treatments, and 1,823 operations performed. A fair proportion of the cases have been already cured, it is said, and over a thousand foci of infection eradicated. Educational bulletins regarding the prevention of trachoma have been sent to over 12,000 households, 120 public health lectures have been given, and visits for purposes of instruction were made to 677 homes. The work of eradication is expected to take years, but eventually it will yield to scientific treatment, and the benefit of the instruction, in the prevention of other diseases, will be great.

Medicolegal

Responsibility in Personal Injury Case for Malpractice of Surgeon

(Texas & Pacific Railway Co. vs. Hill (U. S.), 35 Sup. Ct. R. 575)

The Supreme Court of the United States, in affirming a judgment in favor of plaintiff Hill, against the railway company, for damages for personal injuries sustained in a collision of trains, holds that the various contentions concerning the want of liability on the part of the defendant as the result of any asserted malpractice on the part of the surgeon or surgeons who operated on the plaintiff, were devoid of all merit. The court says that the correctness of this conclusion was adequately demonstrated by a consideration of the text of the charge given to the jury on the subject. In substance the charge, with clearness of statement, excluded all liability on the part of the defendant for any injury resulting from the intervening malpractice of the surgeon or surgeons, if such was found to exist, if the plaintiff had failed to exercise reasonable care in the selection of a competent surgeon or surgeons, and had in any respect fallen below the standard which reasonable prudence would have exacted, not only in the employment of a reasonably competent surgeon, but in following his advice concerning the necessity of the operation to relieve from the consequences of the injury suffered from the collision, if in fact such injury was found to have been suffered.

Frenzy from Chloral—Physician's Prescription as Defense to Crime—Opinions Derived from Medical Books

(United States vs. Perkins (U. S.), 221 Fed. R. 109)

The United States District Court, Eastern District of South Carolina, denies a motion by the defendant for a new trial after his conviction of manslaughter. The court holds that it was properly left to the jury to say which was more reasonable, beyond a resonable doubt, that the defendant had been rendered so frenzied by a dose of 15 grains of chloral that he became thereupon in the condition of mind which made him kill one and nearly kill two more of his fellow passengers, or that out of impatience, petulance, self-will, a desire to escape pain, or previous accustomed self-subjection to the drug, he took so large a dose (enormously beyond his physician's directions) that he voluntarily brought on a frenzied state of intoxication. He testified with extraordinary coolness and clearness as to what occurred. He said he took first one dose of the chloral (15 grains), then immediately (the medical evidence not showing that there is any immediate action in the case of chloral taken through the mouth) under the impulse of his sensations drank the whole of the 480 grains of chloral and then lost all consciousness and memory.

The issue was fairly put to the jury to determine whether or not the intoxicated frenzy in this case proceeded from the voluntary act of the defendant. The jury found that it did; that the intoxication was caused by his voluntary act. A whole shipload of crew and passengers had been imperiled; an innocent party had been put to death; two others were wounded, one being the captain of the ship on whom the safety of all others might depend. All this took place in a crowded drawingroom on a steamer filled with women, who might also have been assassinated. The evidence was quite sufficient to justify the inference beyond a reasonable doubt that the prisoner had voluntarily, while in a perfect condition of sanity and reasonableness, from caprice, petulance, disgust or a simple desire to relieve himself from pain, disregarded the orders of his physician and intoxicated himself to a degree that eventuated so fatally. The verdict, therefore, should not be disturbed.

The prescription of the physician obeyed in good faith is a complete protection for responsibility for the results thereby caused. But, as the jury was charged, it must be obeyed in good faith. His prescription cannot be used as a pretense or excuse when not obeyed. The consequences would be too dreadful. Modern medicine deals in drugs too potent in their effects when taken in excessive doses to permit men to shield themselves under the pretense of a physician's prescription which they have disobeyed. It would offer too great an opportunity for revenge, spite and malice to seek gratification under the madness of an artificial frenzy and then claim immunity because of wilful error in the disobedience of the instructions as to the dose.

The state of South Carolina has passed a statute permitting medical books to be read in civil and criminal cases in the state courts; but it is well settled that such statutes have no application to criminal cases in the federal courts. And the statement made in a medical book, if admissible in evidence in that form, does not become admissible because it is read out of the presence of a jury and its statements then repeated by rote before the jury. Therefore the statements of the physicians in this case, so far as they were opinions based on and the repetition of statements contained in medical books, were subject to the same objections as the books themselves on any consideration of the weight that should be given to such testimony. The difficulty in the medical opinion in this case was one that affects most medical expert testimony and has contributed largely to bring it into its present undeserved disrepute. It is the habit of the so-called experts, and especially the medical expert, to make general statements based on insufficient data—to argue from the particular to the general, and not from the general to the particular.

Contract of Board of Health with Member Also Town Physician to Attend Case of Smallpox

(Lesieur vs. Inhabitants of Rumford (Me.), 93 Atl. R. 838)

The Supreme Judicial Court of Maine overrules exceptions to a nonsuit of the plaintiff ordered in this action for services performed in attending a smallpox patient who was placed in quarantine. The claim of the defendant that the plaintiff was not entitled to recover because it was his duty to perform the services sued for in his capacity as "town physician," the court says, was not sustainable under the evidence. The plaintiff's contract with the town as town physician was to take care "of the town paupers" so far as they required medical aid. There was no evidence that the patient was a pauper at the time he became infected with this contagious disease, and the statute expressly provides that persons who become needy and are assisted with necessary food, medicine, etc., while in quarantine on account of a contagious disease, shall not be considered paupers, or be subject to disfranchisement for that cause, unless such persons are already paupers as defined by the revised statutes.

But it appeared that the plaintiff was one of the three members of the board of health of Rumford at the time the contract between him and the board was made, and while the services thereunder were being performed, and for that reason the defendant contended that the contract was illegal and unenforceable. Does such a contract so contravene public policy that it should not be enforced? The court holds that it does, holds that the contract in question so far contravened public policy that it ought not to be upheld and enforced through the administration of the law. In making the provisions prescribed by statute for the care of a person placed in quarantine, the members of the board of health act in a fiduciary capacity. Their contracts therefor impose on others the burden of paying the expenses thereby incurred. They are public officers, clothed by the legislature with power to incur expenses for others to pay. The law requires of them perfect fidelity in the exercise of that power, and whatever has a tendency to prevent their exercise of such fidelity is contrary to the policy of the law, and should not be recognized as lawful and enforceable through the administration of the law. It was suggested by the plaintiff that in making the contract in question there was no dishonesty, fraud, or concealment on the part of the board or himself; that he acted openly and avowedly for himself; and that the other two members represented all others interested in the contract. But the court thinks that did not answer the requirements of the law. In making provision for the care of the patient, it was

the plaintiff's duty as a member of the board of health to act for others and for their interests, and not for himself and for his interests. Still the court's conclusion that the express agreement made between the plaintiff and the board of health of which he was a member had no binding force as a contract and was not enforceable through the administration of the law, because in violation of public policy, should not be taken to imply that he might not be entitled to recover what he was reasonably entitled to for the services performed of which the defendant had the benefit, disregarding the contract, on which he relied solely in this action.

Society Proceedings

COMING MEETINGS

American Academy of Ophth. and Oto-Laryn., Chicago, Oct. 5-7.
American Association of Railway Surgeons, Chicago, Oct. 13-15.
American Roentgen Ray Society, Atlantic City, Sept. 22-25.
Colorado State Medical Society, Denver, Oct. 5-9.
Delaware State Medical Society, Wilmington, Oct. 11-12.
Idaho State Medical Association, Lewiston, Oct. 6-8.
Indiana State Medical Association, Indianapolis, Sept. 23-24.
Kentucky State Medical Association, Louisville, Sept. 21-23.
Medical Association of the Southwest, Oklahoma City, Oct. 12-13.
Minnesota State Medical Association, Rochester, Sept. 29-Oct. 1.
Mississippi Valley Medical Association, Lexington, Ky., Oct. 19-21.
Missouri Valley Medical Society, Des Moines, Sept. 23-24.
Pennsylvania State Medical Society, Philadelphia, Sept. 20-23.
Utah State Medical Association, Salt Lake City, Sept. 28-29.
Virginia State Medical Society, Richmond, Oct. 26-28.
Wisconsin State Medical Society, Milwaukee, Oct. 6-8.

MICHIGAN STATE MEDICAL SOCIETY

Fiftieth Annual Meeting, held at Grand Rapids, Sept. 1 and 2, 1915

The president, Dr. Reuben Peterson, Ann Arbor, in the chair

Roentgenography and Removal of Foreign Bodies in the Air Passages

Dr. P. M. Hickey, Detroit: The facts obtained from roentgenographic examination of suspected cases of foreign bodies in the air passages and in the upper gastro-intestinal tract may be classed under two divisions: first, the inferences to be drawn from shadows cast by the foreign body itself when present, and, second, the deductions from the changes in the surrounding tissues as the result of the foreign body's influence on them. Bearing these two classes of facts in mind, we conclude that all suspected cases of foreign body should be rayed as a routine measure. As many of these foreign body cases occur in children, especially in young children, it is very important that the time of exposure for the Roentgen plate be as short as possible. It is also advantageous to make use of the fluoroscope now that its use has been surrounded with precautions, so as to make it a reasonably safe procedure. We should remember that very small foreign bodies and very slight changes in the tissues may be inconspicuous on the fluoroscopic screen. The nearer instantaneous the exposure can be made, the better will be the detail of the plate provided that sufficient current be used to give enough exposure. Not only should anteroposterior plates be made, but also lateral and oblique plates. The importance of this rule should not be underestimated. Regarding the extraction of foreign bodies, I would not be disposed to lay down any arbitrary rules. Many of these cases are unique, each one requires a careful consideration of the circumstances, and many conditions often present themselves which test to the utmost the patience and ingenuity of the operator.

I wish to emphasize one point which has been brought out by Dr. Chevalier Jackson, namely, that anesthesia is a dangerous feature in these cases. It is much better in the ordinary esophageal foreign body case to wrap the child securely in a sheet, as in preparation for intubation, and remove the obstruction without general anesthesia. This rule also applies to the removal of foreign bodies from the bronchi. While it is difficult to introduce the bronchoscope without anesthesia in a young child, after the instrument has been introduced no further anesthesia should be given. In many cases the bronchoscope can easily be introduced without any general anesthesia. The maintenance of the cough reflex during the operation is a matter of importance in the prevention of aspiration pneumonia. Another point in this particular is the tendency of children to develop acidosis after prolonged anesthesia. In many of these cases the search for the foreign body may have to be prolonged over a considerable period of time, and if during this long period the child is constantly inhaling ether, the circumstances seem very favorable for acidosis.

DISCUSSION

Dr. R. B. Canfield, Ann Arbor: I agree with Dr. Hickey that, when possible, it is wise not to use anesthesia. In the majority of my cases, the foreign body has been removed under local anesthesia. It is safer to have the larynx thoroughly cocainized, whether a general anesthetic is used or not. Granting that there is greater danger of aspiration pneumonia, I have never seen a case of ether pneumonia in my foreign body work. It is the rule, so far as I can remember at this moment, that the chest signs clear up immediately after the foreign body is removed. The danger of acidosis must be borne in mind, but since we have been using the suspension apparatus in conjunction with the bronchoscope, we have located our foreign bodies with greater ease and rapidity. The only serious accidents I have experienced have been in cases in which an incomplete anesthesia was in operation. Too little stress has been laid on the importance of the laryngeal reflex. The laryngeal reflex may cause death. It seems much safer to resort to deep anesthesia, complete relaxation of the chest, getting rid of the danger of the laryngeal reflex by an additional cocainization of the larynx, than to use no anesthetic.

Dr. B. R. Shurly, Detroit: A wonderful change has been made by the evolution of the Roentgen ray, but the value of the clinical diagnosis, and the value of auscultation and percussion, must not be thrown aside absolutely. As to anesthesia, I think the rule absolutely applies that when it is possible to manage the child without anesthesia, it is certainly preferable to do so, and undoubtedly that can be done with practically all esophagus cases, and with many of the bronchoscopy cases. Local anesthesia will often help. When no general anesthetic is used, we undoubtedly have less secretion, although that can be controlled very nicely many times with the use of atropin, and removed with the suction apparatus. The question of instrumentation is one which is also a matter of personal choice and training. The whole problem of the removal of foreign bodies is a matter of individuality, and very often the ingenuity of the operator is the all-important thing for the particular case.

Dr. P. M. Hickey, Detroit: With regard to the question of anesthesia, I think that is to be governed entirely by how long you will have to keep the child under it. It is usually fairly easy to see a foreign body after you introduce the tube, and I have not had much trouble in introducing the tube. Young children do not tolerate severe operations, and the whole technic of operations on children under 2 years should be safeguarded in every possible way. But if we do find it necessary to use general anesthesia for the introduction of the bronchoscope, the amount of anesthetic given should be limited. Another point worthy of emphasis is the value of the expectant line of treatment. When the foreign bodies are not causing symptoms, the chances are much better with expectant treatment in many cases.

Ocular Evidences of Vicarious Menstruation

Dr. J. E. Gleason, Detroit: It is unusual to see evidences of vicarious menstruation manifested on the part of the eye. In my case there existed complete suppression of the menses over an extended period, a corresponding periodicity in the observance of the ocular symptoms, and the local manifestation in an otherwise normal eye. The treatment has been the use of iron and ovarian extract, 5 grains, three times daily. The result of the first month's treatment was that for the first time the patient had both eyes injected at the same time, the amaurosis was especially prominent, and the vasomotor

symptoms were especially distressing. The last two months the injection has appeared as usual, but other symptoms, especially the headache, seem to have been very much relieved.

DISCUSSION

DR. L. J. GOUX, Detroit: About a month ago I operated on a woman, aged 55, for cataract. The corneal wound was healed and everything progressing satisfactorily, until one morning, about a week after the operation, the whole anterior chamber was filled with blood, and she had only light perception. On investigation, I found that her menstruation had stopped when she was about 20 years of age, and she had not menstruated since that time. This condition is rare, and is something which we are not particularly alert to. It is very important, because we do not know what the ultimate result will be in such cases. In my case there is still sufficient blood there to make me think that the woman is still having hemorrhage.

DR. JOHN D. HUIZINGA, Grand Rapids: About two or three years ago a young lady of 18, who had been menstruating for three or four years, came to me for suppression of the menses. I treated her for two or three months with the usual general treatment. At the regular time of menstruation she had very much depreciated vision. Ophthalmoscopic examination revealed several hemorrhages in both retinas. The menstruation was reestablished shortly, but her vision was very much depreciated permanently.

Spasmophilic Convulsions in Infancy: Their Differentiation and Treatment

DR. CLIFFORD G. GRULEE, Chicago: This type of convulsion is the most common found in infancy. Characteristic of it is the tendency to repeated convulsions within a short period of time, accompanied by laryngeal stridor. Increased electrical irritability is very diagnostic. This type of convulsion must be differentiated from five other forms: terminal, symptomatic, uremic, those due to intracranial conditions, and epileptic. In the epileptic type, it is to be differentiated by its frequency of occurrence, the time of its occurrence, and the increased electrical irritability. In regard to etiology, while gastrointestinal disturbance may play a large part as an immediate cause, there seems to be a spasmophilic state as the basis of this condition. The spasmophilic state may be produced by disturbance of the calcium metabolism or a disturbance of the parathyroid secretion, or both. Sedatives are used for the immediate control of the condition. Of these, the most useful is perhaps chloral hydrate. In the specific treatment, calcium lactate by mouth, and magnesium sulphate subcutaneously may be used. The dietetic treatment consists of carbohydrate diet from twenty-four to forty-eight hours, followed by a whey-free diet, the whey being increased gradually. Cod liver oil is added in small doses. One must avoid the giving of excessive alkalies in this condition.

Observations on Tonsillectomy Some Years After Operation

DR. B. R. SHURLY, Detroit: I consider the removal of tonsils and adenoids, when thoroughly done, as the most satisfactory procedure that falls to the lot of the nose and throat surgeon. The results speak for themselves. The prophylactic value to the young child in the prevention of nasopharyngeal catarrh and catarrhal deafness of adults, and in later life, cannot be estimated. The influence of tonsillectomy on focal infection subsequently prevented is immeasurable.

Heart Disease in Children

DR. WALTER J. WILSON, JR., Detroit: In the Children's Free Hospital, of Detroit, in 1914, eighteen heart cases were observed out of a total of 406 medical cases, a little short of 5 per cent. That we have underrated their frequency and importance is apparent when we consider the etiology of heart disease in general, for it is at this period when the infections are especially prominent, such as tonsillitis, scarlet fever, diphtheria, measles, etc., and seeds are often sown at this time which grow into valvular insufficiency and myocardial degeneration in later years. When there is a persistent slight elevation of the child's temperature, with an increase in the normal pulse rate, the presence of systolic murmur, usually mitral, occasionally a diastolic murmur, replacing the aortic sound, especially when there are signs of decompensation, shown by a swollen tender liver, and fine crackling râles at the bases of the lungs, the diagnosis can be made readily. When the picture is incomplete, one should always think of middle ear disease, nephritis and tuberculosis, and exclude them before making the diagnosis of endocarditis exclusively, although they may occur as complications the one of the other. Murmurs may be significant or not, according to the accompanying conditions. Heart block is not infrequent in children, occurring even in infants, and manifests the same characteristics as in adults. The prognosis in any true case of endocarditis or myocarditis must always be a guarded one. The general principles of treatment are the same as for adults: in the period of compensation, absolute rest, lying flat on the back in bed, unless orthopnea is present; a small dose of opium to relieve dyspnea; a saline to deplete the bowels, and restriction of the fluid intake to limit the work of the heart. In cases in which immediate action is necessary, a small dose of strophanthin hypodermically may be used. The tincture of digitalis for continuous digitalis medication is the remedy of choice. During the period of infection, an ice-bag is used over the heart with a flannel intervening. The salicylates in heavy doses are combined with sodium bicarbonate, the latter being used in the proportion of 2:1 of the former. In severe cases in adults 20 grains every two hours of sodium salicylate is used, the doses for children being scaled down to suit the age. This heavy dosage is used for three days, and is then usually halved for three days more, and thereafter one-fourth the initial dose is used. These methods usually suffice, but in selected cases vaccines and serums may be used to advantage.

(*To be continued*)

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Medical Sciences, Philadelphia

September, CL, No. 3, pp. 313-468

1 *Paralytic and Other Persistent Sequelae of Migraine. J. R. Hunt, New York.
2 Roentgen Ray in Gastro-Intestinal Affections. C. D. Aaron, Detroit.
3 *Late Results of Cardiorrhaphy; Report of Case Three Years after Operation. E. H. Pool and M. A. Ramirez, New York.
4 *Removal by Caffein of Some Digitalis Arrhythmias. W. M. Barton, Washington, D. C.
5 *Brain Syphilis. E. M. Auer, Philadelphia.
6 *Permanent Partial Compression of Both Common Carotids in Epilepsy; Report of Eight Operations. J. R. Eastman, Indianapolis.
7 Statistics of Age Mortality Based on Number of Persons Alive at Each Age. C. M. Montgomery, Philadelphia.
8 *Presence of Tubercle Bacilli in Blood of Tuberculous Patients. L. Kessel, New York.
9 Prurigo Nodularis and Lichenification with Tumor Formation. C. M. Williams, New York.
10 Study of Gastric Sediments and Their Interpretation. B. B. V. Lyon, Philadelphia.
11 Influence of Athletic Training on Blood Pressure. W. S. Middleton, Madison, Wis.
12 *Administration of Glucose Solutions as Prophylactic against Postoperative Shock. A. C. Burnham, New York.

1. Abstracted in THE JOURNAL, June 12, 1915, p. 2012.

3. **Results of Cardiorrhaphy.**—The operation in this case was reported three years ago. The wound involved the left margin of the heart somewhat posteriorly; it was about one-half inch in length, transverse on the long axis of the heart, and approximately 1½ inches above the apex. Five stitches were inserted and tied before the bleeding was completely controlled. All visible blood was then removed and the pericardium closed with interrupted catgut stitches. There was considerable tension between the edges of the pericardial wound, which caused some gaping between the stitches in the lower mesial part. The flap was replaced and chromic stitches used to repair muscles and fascia. The

operation took about thirty minutes. Now there is a systolic impulse diffused over an area about 4 cm. in diameter and with its maximum intensity about the center of this area at a point 8 cm. to the left of the midline in the fifth interspace. A slight diastolic retraction can also be seen over this area. Tactile fremitus is normal over entire chest. The cardiac impulse is left with maximum intensity in the fifth interspace 8 cm. to the left of the middle line with patient in upright position; with patient lying on the right side it is felt 6.5 cm. from the midline, and with patient lying on the left side 11 cm. from the midline. No thrill felt.

Pulmonary resonance is normal over the entire chest. The right border of the heart percusses 1 cm. to the right of the right border of the sternum; the left border percusses 11 cm. to the left of the midline. Respiratory sounds are normal over entire chest. No adventitious sounds are present. The first heart sound is heard with maximum intensity in the fifth interspace 8 cm. to the left of the midline. A soft blowing systolic murmur is heard with maximum intensity in the fifth interspace 8 cm. to the left of the midline and is transmitted for about 4 cm. to the left and 2 cm. to the right of the point of maximum intensity. No other murmurs heard. No friction rubs present. Muscular quality of heart sounds is good. The pulmonic second sound is slightly accentuated. The pulse is 70, regular in force, volume and rate. The blood pressure while at rest is: left arm, 110 systolic, 60 diastolic; right arm, 112 systolic, 60 diastolic. After active exercise with chest weights for five minutes the pulse rate is increased to 75 beats per minute, the blood pressure remaining the same: left arm, 112 systolic, 60 diastolic; right arm, 112 systolic, 60 diastolic. After resting for five minutes the pulse rate is 70 per minute and the blood pressure 110 systolic, 60 diastolic in both arms. The heart work (Sahli sphygmobolometer) is: 11.2 gm. cm. of Hg left arm; 12.4 gm. cm. of Hg right arm. No abnormal venous or arterial pulsations visible; no visible capillary pulsations, no cyanosis, edema, nor pallor. The physical examination presents nothing further that is worthy of note.

4. **Use of Caffein in Digitalis Arrhythmias.**—All the irregularities of the heart beat which are brought about by digitalis, Barton states, tend to be removed by caffein. Although, in many cases, digitalis arrhythmia will spontaneously disappear when the drug is stopped, instances arise, unfortunately too common, in which, after prolonged digitalis administration, the conductive system is so depressed that serious results may arise. Under these circumstances the administration of caffein will be of service and therefore strongly indicated. The action appears to be due to the increase in irritability of the conduction system produced by the caffein, which antagonizes and finally overcomes the depressing effects which digitalis exerts on the auriculoventricular bundle.

5. **Brain Syphilis.**—In an examination of the pathologic material of fifty-three cases, including tabes, taboparesis, general paralysis of the insane, syphilis and syphilitic meningitis, Auer was impressed by the similarity of the pictures. In all he found, to a greater or less extent, an infiltration of the meninges and the sheaths of the smaller vessels of the central nervous system by mononuclear lymphocytes and plasma cells, and further, this infiltration in general paresis did not confine itself to the vessel sheaths or in cerebral syphilis to the surface of the central nervous system.

6. **Compression of Carotids in Epilepsy.**—In six cases of general epilepsy Eastman compressed both common carotids in two cases, the plan followed being in most respects that adopted by Momburg. Silver wire, 1 mm. in thickness was passed under each common carotid, a short loop was cut off, and the ends were twisted until the temporal pulse on each side became so slight as to be just perceptible. A catgut strand was tied to the twisted ends of the wire and left hanging out of the wound to be used as a guide in case threatening cerebral symptoms should require immediate removal of the wire. In both cases the result, although gratifying so far as the effect on the frequency and character of the attacks is concerned, left much to be desired. One patient though distinctly benefited, has had, since the operation, attacks of petit mal, on the average, one and one-half times a week. During the last month he has had but two attacks. Previous to operation the attacks occurred several times daily and were of severer form. In the second case, of a young girl, there has been a slight increase in the length of the interval between the attacks, and the character of the epilepsy has been changed, for the time at least, from grand mal to mild petit mal.

A third case was one of petit mal in a man, aged 35 years, the other a case of grand mal of the severest character and of long standing in a woman, aged 46 years. The man of 35 with petit mal was apparently somewhat improved, in that the interval between attacks was more than doubled in length. The severity of the attack was reduced. The result in a case with grand mal in a woman of 46 was a complete failure. In the fifth case the patient had suffered daily severe attacks following a blow on the head over the upper rolandic area on the right side. A decompression had been made without benefit. In the period of seven weeks elapsing since the carotids were compressed he had had no attacks whatever. The sixth patient had suffered attacks of grand mal at intervals of nine days for one year with almost continuous headaches. During the last few months prior to operation the attacks had increased in severity and frequency.

8. **Tubercle Bacilli in Blood of Tuberculous.**—A number of different methods were employed by Kessel to determine whether tubercle bacilli are present in the circulation of patients with advanced pulmonary tuberculosis. Blood withdrawn from thirty-eight patients was inoculated intraperitoneally into guinea-pigs. Necropsies and microscopic sections two to three months later failed to reveal any evidence of tuberculosis. Microscopic examination of the blood withdrawn from ten patients yielded negative results. The many sources of error in the microscopic examination of blood for tubercle bacilli have been pointed out. The blood of seven patients previously subjected to a tuberculin injection was inoculated intraperitoneally into guinea-pigs. Necropsies and microscopic sections failed to reveal any evidence of tuberculosis. In three patients who had previously received a tuberculin injection, blood was withdrawn and after removal of the serum was inoculated intraperitoneally into guinea-pigs. One of the pigs developed an extensive tuberculosis. An attempt made to grow the tubercle bacilli directly from the blood proved unsuccessful.

12. **Glucose Solutions as Prophylactic in Shock.**—Burnham advises that glucose solution be given as a routine after every operation in which one has reason to fear more than the ordinary amount of postanesthetic shock; it should be given as a routine in every case in which postoperative oral feeding may be difficult or insufficient for a considerable period after operation; it should be given as an emergency measure either before or after operation for the relief of an existing or threatened acidosis.

American Journal of Tropical Diseases and Preventive Medicine, New Orleans

July, III, No. 1, pp. 1-64

13 Importance of Tropical Diseases to American Practitioner, as Illustrated by Their Occurrence in United States. C. F. Craig, U. S. Army.

14 Two Years' Investigation in Peru of Verruga and Its Insect Transmission. C. H. T. Townsend, Washington, D. C.

15 Is Sprue a Moniliasis of Digestive Tract? B. K. Ashford, U. S. Army.

16 Barbados in British West Indies. J. F. Siler, U. S. Army.

Arizona Medical Journal, Phoenix

August, III, No. 7, pp. 4-14

17 Occupational Injuries, Especially of Visual and Hearing Organs, Their Relation to Employers' Liability Act and Workman's Compensation Act. A. Martin, Phoenix.

18 Life, Growth and Reproduction of Bone. W. L. Brown and C. P. Brown, El Paso, Texas.

Boston Medical and Surgical Journal

September 2, CLXXIII, No. 10, pp. 337-374

19 Scope of Public Health Service. W. C. Hanson, Belmont.

20 Operative Treatment of Fractures. C. L. Scudder, Boston.

21 *Endocarditis in Children; Its Prophylaxis and Treatment in Outpatient Department. R. S. Eustis, Boston.
22 Social Problems Involved in Treatment of Children with Heart Disease. C. M. Welsh, Boston.
23 *Tonsillectomy as Therapeutic Measure in Treatment of Chorea and Endocarditis. J. H. Young, Newton.

21. **Endocarditis in Children.**—This is a preliminary report of a special heart clinic which has been conducted in the children's room at the Massachusetts General Hospital in the attempt to solve two problems in the treatment of early or suspected endocarditis in children. The first is whether the strict rest in bed for weeks or months, can be carried out from an outpatient department; second, whether this prolonged period of rest is worth while. A total of 60 patients have been treated, 23 have been discharged during nine months, leaving 37 patients still under supervision. Thirty-two of the 60 patients, or 53.3 per cent. were choreic at the time of admission, and 10 more gave a history of choreic attacks in the past, making a total of 42 cases, or 70 per cent., in which chorea played a part. Nine cases, 15 per cent., were rheumatic on admission and 19 more gave a history of joint or muscle involvement in the past that was interpreted as of rheumatic origin, making a total of 28 cases, 46.6 per cent., which were classed as rheumatic. Thirteen cases, or 21.6 per cent., gave a history of both rheumatism and chorea, and in two of these both diseases were active while the patient was under observation. In only one patient was there no evidence of either rheumatism or of chorea. Seventy-five per cent. of patients came through their attack without acute endocarditis, 13 per cent. more are still in the suspicious class, and only 12 per cent. have received permanent cardiac damage.

23. **Tonsillectomy as Therapeutic Measure.**—Of the fifty-four cases reported by Young, 21 had a tonsillectomy performed either before the patients first came under observation, or while under observation, and it is with the end results in these cases that this paper deals. In all but three of the 21 cases, tonsillectomy was done in the outpatient department of the Massachusetts General Hospital. In two patients, operated on outside the hospital, the condition of the tonsils before operation is not known; in the other patients the tonsils were described as "considerably enlarged." In 11 cases the tonsils were described as "large," "enlarged," "prominent" or "prominent and ragged." In 4 cases as "slightly +," "moderate," "slightly enlarged and inflamed" or "moderately enlarged." In one "buried," in one "not visible" and in one "small." Of the 21 cases 6 gave a history of previous tonsillitis. Five patients gave a history of previous arthritis; since tonsillectomy 3 patients have been free from arthritis, while 2 patients have had subsequent attacks, one two months, the other twenty-seven months, after operation. A history of chorea previous to operation was given in 9 cases. After the removal of the tonsils 8 of these patients had from one to four attacks of chorea. There were 4 patients who have had from one to four attacks of chorea since the removal of the tonsils with no history of previous attacks.

Of the 21 cases, 12 patients were known to have a definite endocarditis before tonsillectomy. One patient had an acute arthritis with a questionable endocarditis when first seen, no history of chorea or tonsillitis. Of the remaining 8 cases it is impossible to positively prove the absence of endocarditis before operation. At the present time 17 patients show a chronic endocarditis, and of these 12 were known to have had endocarditis before operation. Three patients have had a fresh endocarditis or an acute exacerbation of a chronic endocarditis since operation, and in two patients the diagnosis is probable but not certain. Of these five cases, endocarditis was definitely known to be present before operation in two patients. One known and one suspected patient with acute endocarditis now have normal hearts. Since operation one patient has been discharged from the ward with the diagnosis of subacute endocarditis. The present condition of 3 patients is unknown. Of the remaining 18 patients, 12 are well, 2 have no endocarditis, 10 still have an endocardial murmur, and, with one exception, show slight cardiac hypertrophy. The occurrence of chorea after tonsillectomy in 12 out of 21 cases strongly suggests, however, that removal of the tonsils does not offer the protection against chorea, and the always present possibility of endocarditis, that many have heretofore believed.

Bulletin of Johns Hopkins Hospital, Baltimore

September, XXVI, No. 295, pp. 309-340

24 Lesions Produced by Arsenic and Their Bearing on Problem of Specific Arsenic Therapy. W. H. Brown, New York.
25 Miliary Blastomycotic Retrogressive Lymphangitis of Epicardium. E. R. LeCount, Chicago.
26 Occasional Feature in Pathology of Splenomegaly. T. P. Sprunt, Baltimore.
27 Michael Servetus: Discoverer of Pulmonary Circulation. J. C. Hemmeter, Baltimore.
28 Psychoses of High Imbecile. H. J. Berkley, Baltimore.
29 *Dermoid Cyst Showing Unusual Features. J. S. Willock, Baltimore.
30 Mechanism of Lobar in Spontaneous Evolution. H. A. Stephenson, San Francisco.

29. **Dermoid Cyst Showing Unusual Features.**—Willock reports the case of a negro, aged 40, who presented just to the left of the center of the forehead a small round tumor about 7 mm. in diameter, which clinically presented all the features of an ordinary sebaceous cyst. It had been present four years and showed the usual comedo-like opening. It was smooth, freely movable over the deeper structures, and had shown no recent rapid increase in size. Some months previous to the appearance of the tumor, a long lanugo hair had developed at the point, which later was shown to be the site of the comedo-like opening of the cyst. The cyst was removed. The most striking feature presented by the cyst was the large number of modified hair follicles which sprang from all parts of its wall. The hair follicles began as short, thick pedicles, which quickly branched into short finger-like processes, many of which contained lanugo hairs. These hair-containing follicles branch and at times two or more hairs are contained in a single follicle. Springing from these hair follicles and at times directly from the cyst wall are other finger-like processes which do not contain hair, nor have they a lumen, although their cellular elements resemble in every way the cells of the hair-containing follicles. No definite sebaceous glands were present.

Cleveland Medical Journal

July, XIV, No. 7, pp. 483-532

31 Some Conditions Affecting Toxic Dose of Ouabain (Strophanthin). T. Sollmann, Cleveland.
32 Case of Rheumatic Endocarditis Complicated by Multiple Emboli and Thrombosis, in which Blood Flow Determinations Were Carried Out; Necropsy Findings. R. W. Scott and G. N. Stewart, Cleveland.
33 Luetin Reaction. H. Feil, Cleveland.
34 Early Incision of Breast Abscesses during Lactation. J. L. Bubis, Cleveland.
35 Removal of Open Safety Pin, Point Up, from Left Bronchus of Seven-Year-Old Child. S. H. Large, Cleveland.

Journal of Abnormal Psychology, Boston

August-September, X, No. 3, pp. 153-224

36 Constructive Delusions. J. T. MacCurdy and W. L. Treadway, New York.
37 Socrates in Light of Modern Psychopathology. M. J. Karpas, New York.
38 Psychoneuroses Among Primitive Tribes. I. H. Coriat, Boston.
39 Two Interesting Cases of Illusion of Perception. G. F. Arps, Columbus.

Journal of Experimental Medicine, Lancaster, Pa.

September, XXII, No. 3, pp. 269-388

40 *Action of Ethylhydrocuprein (Optochin) on Pneumococci and Other Micro-Organisms in Vitro. H. F. Moore, New York.
41 *Effect of Irritation on Permeability of Meninges for Salvarsan. E. Stillman and H. F. Swift, New York.
42 Changes in Electrocardiograms Accompanying Experimental Changes in Rabbits' Hearts. F. R. Fraser, New York.
43 Bacteriologic and Clinical Studies of an Epidemic of Koch-Weeks Bacillus Conjunctivitis Associated with Cell Inclusion Conjunctivitis. H. Noguchi and M. Cohen, New York.
44 *Metabolism in Dog Before and After Removal of Spleen. S. Goldschmidt and R. M. Pearce, Philadelphia.
45 Studies in Liver and Kidney Function in Experimental Phosphorus and Chloroform Poisoning. E. K. Marshall, Jr., and L. G. Rowntree, Baltimore.

46 Intoxication of Splenectomized Mice by Feeding Fresh Spleen and Other Organs. P. A. Lewis and A. G. Margot, Philadelphia.
47 *Function of Spleen in Experimental Infection of Albino Mice with Bacillus Tuberculosis. P. A. Lewis and A. G. Margot, Philadelphia.
48 *Numerical Laws Governing Rate of Excretion of Urea and Chlorids in Man. Influence of Pathologic Conditions and of Drugs Excretion. F. C. McLean, New York.

40. **Action of Ethylhydrocuprein on Pneumococci.**—The results of Moore's study agree, in the main with those of other workers. He has not had such a large percentage of cures as is claimed by Morganroth, namely, 90 to 100 per cent.; nor has he seen any definite protective action of ethylhydrocuprein in vivo with an amount of infection greater than 1,000 times the minimum lethal dose of a highly virulent strain. Moreover, the greater the virulence of the strain (by passage through mice) the greater was the difficulty in protecting against increasing multiples of the minimum lethal dose. Of 85 mice infected with 100 times the minimum lethal dose or less, and treated, 15 mice, or 17.6 per cent. died of pneumococcal septicemia; 13 mice, or 15.2 per cent., died of toxicity of the drug or some obscure cause, the heart's blood being sterile at necropsy (the corresponding controls invariably died of pneumococcal septicemia), 56 mice, or 66.8 per cent., survived. Of these 85 treated mice, 69, or 81 per cent., either recovered or died of causes other than pneumococcal septicemia; such, for example, as the toxicity of the drug.

41. **Effect of Irritation on Meninges.**—In the experiments done by Stillman and Swift the subdural injection of normal salt solution, normal serum, serum salvarsanized in vivo or weak solutions of cyanid of mercury does not demonstrably increase the permeability of the spinal cord or brain for salvarsan which is circulating in the blood at the time of the subdural injection.

44. **Studies of Metabolism in Dog.**—Four dogs were subjected to metabolism studies by Goldschmidt and Pearce before splenectomy and at intervals of three days to three months after splenectomy. In three of the four animals the removal of the spleen was not followed by any disturbances of nitrogen metabolism, fat utilization, or iron elimination. Two of these animals showed no anemia, and the third only a slight reduction in hemoglobin and number of red cells. A fourth animal, studied ten days and three months after splenectomy, developed eventually a definitely progressive anemia of moderate severity. This animal showed a slight loss of weight, a slight disturbance of nitrogen balance, and of creatin-creatinin partition, with a marked increase in the elimination of iron. The authors conclude therefore that the spleen has no important influence on metabolism, and that the disturbance occurring in one of their dogs were due to the coexisting anemia and not to the absence of the spleen.

47. **Function of Spleen in Experimental Infection.**—Experiments are reported by Lewis and Margot which show that in all probability the increased resistance to tuberculous infection which is imparted to mice by the removal of the spleen is a consequence of the loss of a function of the organ. This function can be restored by feeding of fresh spleen. The authors attribute these changes to the removal and restoration, as the case may be, of a particular substance for which the designation tuberculosplenatin is suggested. This substance is assumed to be related to the spleen as epinephrin is related to the epinephrin gland. It is peculiar to the organ but not to the species. It is not found in other organs of the body so far as their observations have extended. The absence of the substance from the lymphatic glands seems of especial importance in this connection.

48. **Laws Governing Rate of Excretion in Man.**—Relatively increased concentration of chlorids in the plasma, McLean claims, occurs in certain conditions, especially in certain forms of cardiac and renal disease. Under certain conditions, notably in fevers or in diabetes, or as the action of diuretics (digitalis), the chlorid threshold may be temporarily or permanently lowered. This may result in a decrease in the concentration of chlorids in the plasma to a point lower than the lowest point which is seen in normals. Failure to excrete chlorids in pneumonia is associated with a lowered concentration of chlorids in the plasma. Excretion begins at the time this concentration increases. Edema is usually accompanied by a relatively increased concentration of chlorids in the plasma. The relations ordinarily return to the normal state when edema disappears. Chlorid and urea functions may be quite independent of one another.

Journal of Sociologic Medicine, Easton, Pa.

August, XVI, No. 4, pp. 197-252

49 Health Protection of Sailor in Merchant Marine. R. M. Woodward, San Francisco.
50 Sociologic Experiment in Treatment of Tuberculous Working Women. P. K. Brown, San Francisco.

Journal-Lancet, Minneapolis

August 15, XXXV, No. 16, pp. 429-462

51 Indian Medical Service. P. F. Rice, Cannon Ball, N. D.
52 Primary Melanosarcoma of Ovary. G. G. Cottam, Sioux Falls, S. D.
53 *Case of Splenic Anemia, Including Early Splenectomy and Necropsy Two Years Later. T. S. Roberts, Minneapolis.
54 Plea for Conservatism in Nasal and Tonsillar Operations. C. Williams, St. Paul.
55 *Pathology of Pernicious Anemia. M. Barron, St. Paul.

53. **Case of Splenic Anemia.**—An analysis of Roberts' case presents several features worthy of mention. There is nothing in the history of the patient suggestive of the etiology of the disease. There was a marked leukocytosis soon after operation, which in this case persisted and increased to the end. The average number of white cells in eight counts before operation was 4,925; the lowest, 2,700; highest, 6,500. The average of twelve counts after operation was 15,985; lowest 9,000; highest 25,000. There was throughout a rather unusually high hemoglobin percentage, the general average being 62 per cent., the average color index was 8; highest, omitting one of 2.2 and one of 1.4 occurring soon after sharp hemorrhages, was 1; lowest, 0.6. A notable irregularity in the shape and size of the red cells was always present, and during the last year became pronounced. Gastric and intestinal hemorrhages occurred only after the removal of the spleen. There was no jaundice or pigmentation of the skin even during the Banti's stage. There were several periods of improvement, two especially prolonged and pronounced, suggesting recovery; but there was no corresponding improvement in the condition of the blood. Splenectomy, even though done early, did not arrest the disease or modify its course in any way. The clinical diagnosis of uncomplicated splenic anemia was apparently confirmed by the necropsy. The only other important pathologic condition was a moderate grade of parenchymatous nephritis; but this did not seem sufficient to account for the death of the patient, and, moreover, the progress of the case to the end was like that of splenic anemia, not nephritis.

55. **Pathology of Pernicious Anemia.**—The blood picture in a case of pernicious anemia in which splenectomy was performed was studied by Barron both before and after operation. Blood examination up to five weeks before operation showed hemoglobin about 35 per cent.; red blood cells, 2,000,000; hemoglobin index, about 1; white blood cells, 3,500; marked anisocytosis; slight poikilocytosis; polychromatophilia and granular degeneration; practically no normoblasts, no megaloblasts; no "Howell-Jolly" bodies. The patient's condition grew progressively worse under medical treatment, and splenectomy was performed. The hemoglobin, which was around 25 per cent. at the time of operation, rose gradually until it reached 48 per cent. fifteen weeks later. The red blood cells arose from 1,300,000 to 1,900,000. The leukocyte count soon rose to normal, and remained about normal. The shape and size of the red cells gradually improved; polychromatophilia and granular degeneration remained about the same. Normoblasts increased until at one time there were 1,400 per cm. A few megaloblasts appeared but later disappeared. The most noticeable and pronounced change, however, was in the appearance of the "Jolly" bodies soon after the splenectomy. These nuclear remnants not only persisted, but increased to enormous numbers, in the blood. Unfortunately, a perinephritic abscess developed about three and one-half months after the opera-

tion, and this seemed to check the improvement. The patient died about a month later.

Kansas Medical Society Journal, Topeka

August, XV, No. 8, pp. 235-266

56 Medical School and State. J. Sundwall, Lawrence.
57 Shock, Its Nature and Prevention. G. E. Coghill, Lawrence.
58 Case of Apoplexy. W. S. Lindsay, Topeka.

Lancet-Clinic, Cincinnati

August 21, CXIV, No. 8, pp. 161-180

59 Report and Clinical Demonstration of Case of Fracture of Twelfth Dorsal and First Lumbar Vertebra, Laminectomy and Results. W. T. Willien, Terre Haute, Ind.
60 Scope and Function of Medical Department. C. F. Coffin, Indianapolis.
61 Intestinal Stasis. N. Mutch, London, England.

August 28, No. 9, pp. 181-200

62 Senile Dementia or Chronic Cortical Atrophy. R. Ingram, Cincinnati.
63 Rabies in Indiana. W. Shimer, Indianapolis.
64 Scope and Function of Medical Department. C. F. Coffin, Indianapolis.

Medical Record, New York

September 4, LXXXVIII, No. 10, pp. 383-424

65 Human Prostate Gland in Youth. O. S. Lowsley, New York.
66 Roentgen-Ray Treatment of Exophthalmic Goiter. C. A. Simpson, Washington, D. C.
67 Cerebellar Symptomatology. M. S. Woodbury, Clifton Springs.
68 Volumetric Determination of Sulphates in Urine. A. Knauer, Bonn, Germany, and B. Horowitz, New York.
69 Pain and Its Significance. J. H. Dempster, Detroit.
70 Complement Fixation in Chicken Sarcoma. C. H. Bailey, New York.

Michigan State Medical Society Journal

August, XIV, No. 8, pp. 301-452

71 Mechanism of Urinary Obstruction in Relation to Variations in Renal Functions. H. W. Plaggemeyer, Detroit.
72 Peripheral Nerve Diseases and Their Treatment. E. Bentele, Detroit.
73 Treatment of Asthma and Hay Fever by Active Immunization. R. S. Morrish, Flint.
74 Infections of Hands. W. T. Dodge, Big Rapids.
75 Clinical Examination of Feces. C. B. Lockwood, Detroit.
76 Abdominal Injuries. G. H. Palmerlee, Detroit.

New Orleans Medical and Surgical Journal

September, LXVIII, No. 3, pp. 145-214

77 *Intravenous Injection of Diphtheria Antitoxin. E. M. Dupaquier, New Orleans.
78 Combined Application of Percy Cauterization and Internal Iliac Ligation in Treatment of Cervical Cancer. M. J. Gelpi, New Orleans.
79 Emetin Error. J. J. Sarrazin, New Orleans.
80 Pellagra in United States. P. M. Perdue, Kansas City, Mo.
81 Cysticercus Cellulose of Hog. W. H. Dalrymple, Baton Rouge.
82 Method to Lessen Perineal and Extensive Vaginal Tears During Childbirth. P. J. Carter, New Orleans.
83 Asthmatic Attacks and Inhalation of Flour Dust. E. A. Bertucci, New Orleans.
84 Etiology and Pathology of Gallstones. J. A. Lanford, New Orleans.
85 Diagnosis of Gallbladder Disease. J. B. Elliott, Jr., New Orleans.
86 Treatment of Gallstone. O. Lerch, New Orleans.
87 Surgical Treatment of Gallbladder Diseases. F. W. Parham, New Orleans.
88 *Experimental Ligation of Splenic Arteries in Dogs. S. C. Jamison, New Orleans.

77. **Diphtheria Antitoxin Intravenously Injected.**—Of the thirty-two cases of diphtheria reported by Dupaquier, in which the patients were injected intravenously with diphtheria antitoxin, twenty-one were of a severe type. Of these twenty-one patients, eight died, seven from complications which had already set in, before admission to the service, one patient with laryngeal diphtheria being almost moribund; and second, a child having paralysis of palate, pulmonary tuberculosis and toxic nephritis. The eighth death occurred April 11, 1915, three hours after the injection. Barring this single fatal termination, the results and symptoms observed were encouraging, indicating a marked advance on the former treatment. The temperature dropped to normal from twelve to twenty-four hours more quickly and did not rise again. The membranes disappeared quickly as seen in six out of ten laryngeal patients, not intubated, recovering; and of the four intubation cases, only one patient died; a good showing. In all cases distressing symptoms abated markedly sooner. Complications developed in only one case after injection, lobular pneumonia, with recovery of patient. Paralysis of the palate was seen only in one case (intubation case); the patient recovered. Convalescence was shorter, and the feeling of well-being came back sooner, even in severe cases. Throat was cleared from the bacilli much sooner, on an average, within twenty days.

The number of carriers was lessened. In addition to these advantages the method proved a great saving of serum as compared with the intramuscular administration; for, most cases received only the initial dose, 10,000 units, while only in three cases was the dose repeated once. Dupaquier suggests first, that the serum for intravenous injection be made of a greater dilution, if possible a high dilution of dry globulins, not a concentrated solution, and clear, not cloudy. Second, that it be warmed and administered at the temperature of the body. Third, that the gravity method and not the hand-syringe "push method" be used. The injection should not be made at once, in those entering the hospital walking, or after exertions of some kind, as in the two instances Dupaquier reports. Rest, a rest of at least one hour in bed, except in severe laryngeal cases of emergency, should be observed before the serum is injected. Dupaquier believes that the striking serum reactions are not a contraindication to the intravenous administration of diphtheria antitoxin, and that when the technic is perfected the intravenous administration of antitoxin will be the routine method of treating diphtheria.

88. **Experimental Ligation of Splenic Arteries in Dogs.**—Ten dogs were operated on by Jamison. The spleen pedicle was firmly ligated, both the veins and the arteries being included in the ligatures. Two dogs died of shock and hemorrhage within a few hours; four dogs lived over one week and less than three; the remaining four lived over four months, in apparent perfect health, and were finally killed in the course of other experiments. Of the four dogs which lived over a week and less than three, necrosis of the spleen was demonstrated at necropsy in three of them, and in the other, an enormous central abscess of the spleen was found. Cultures of the pus from this abscess failed to show a growth on Loeffler's blood serum or agar, and no organisms could be demonstrated in stained smears.

Of the four dogs that survived, two were laparotomized some four months after the first operation and atrophied spleens removed. Both of these dogs recovered from the second operation without incident. One dog died five months after operation; in this case the spleen was atrophied, and no evidence could be found that its condition had contributed to death; the liver was found infected with coccidia and affected with advanced cirrhosis; filarial worms were found in the heart; the latter probably produced the dog's death. It is evident, then, that mere ligation of the splenic pedicle is extremely unsatisfactory, although successful in 50 per cent. of the cases, and that it would be entirely unjustifiable to subject a human patient to such a risk. Two dogs were experimented with late in January. The same steps were followed as above, except that large veins to the spleen were carefully isolated and not included in the ligatures. Both dogs died within ten days, and necrosis of the spleen was demonstrated at necropsy, showing that patency of the veins did not hinder the necrosis.

In looking over the necropsy records and certain specimens preserved from the experiments, Jamison found that in cases in which the dogs recovered the spleen was absolutely covered by the omentum, but that in cases in which the dogs developed necrosis of the spleen the omentum had apparently failed to envelop it. It was further observed that in one dog which survived three weeks after operation, the omentum had enveloped over half of the spleen, and that this part of the organ showed atrophy, while that part uncovered by omentum showed necrosis.

In the next experiments the abdomen was opened in the usual manner, and the splenic pedicle ligated, the arteries and veins being included in the ligatures, but the spleen was then covered by the great omentum, and the abdomen closed.

Up to date five dogs have been treated in this manner and have recovered without incident. It was evident that in the four dogs that recovered from mere ligation of the pedicle, a severe crisis had been passed during the ten days following operation; this was not the case with the last five, which showed no evidence of any trouble more than would follow any simple laparotomy. In those cases in which the spleen was covered by omentum, the degree of atrophy was greater than that following simple ligation, and came about in a shorter time, about three weeks, as well as could be determined.

New York Medical Journal

August 28, CII, No. 9, pp. 433-484

89 Bone Graft Wedge. F. H. Albee, New York.
90 Pituitary Tumor with Improvement after Puncture of Corpus Callosum. W. M. Leszynsky, New York.
91 Greek Physicians at Persian Court. W. B. Konkle, Montourville, Pa.
92 Initial Strain in Weak Foot. P. W. Roberts, New York.
93 Uterine Fibroids. G. E. Shoemaker, Philadelphia.
94 Gonorrhea in Male. H. Schoenrich, Baltimore.
95 Fractures. J. F. X. Jones, Philadelphia.
96 Midwives and Physicians as Factors in Puerperal Fever. N. Kavinoky, Buffalo.
97 Vaccine Therapy in Dermatology. A. Strickler, Philadelphia.
98 Acetonuria and Carbohydrate Starvation. S. H. Blodgett, Boston.
99 Laryngeal Tuberculosis. A. S. Kaufman, Philadelphia.
100 John Bunyan, Hypochondriac. H. D. King, New Orleans.

September 4, No. 10, pp. 485-540

101 What Do Newer Methods of Treatment Offer Patient with Malignant Disease of Uterus? J. G. Clark, Philadelphia.
102 Teaching of Medicine. A. H. Wright, Toronto, Canada.
103 Helpful Sign in Diagnosing Latent Syphilis. I. W. Voorhees, New York.
104 Pruritus—For Example. W. P. Cunningham, New York.
105 God Man or Jehovah Complex. B. Glueck, Washington, D. C.
106 Fistula Ani. J. F. Saphir, New York.
107 Importance of Immunizing Nurses and Hospital Attaches against Typhoid. E. H. Funk, Philadelphia.
108 Rachitis. W. L. Rost, New York.
109 Diastolic Pressure. L. M. Warfield, Milwaukee, Wis.
110 Clinical Medicine and Public. M. Schulman, New York.
111 Case of Squamous Cell Carcinoma of Larynx. L. J. Goldbach, Baltimore.
112 Occupation as Etiologic Factor in Disease. N. Schwartz, New York.

Oklahoma State Medical Association Journal, Muskogee

July, VIII, No. 2, pp. 57-90

113 Cancer of Uterus. J. Overton, Tulsa.
114 Pathologic Breast and Its Treatment. F. Y. Cronk, Guthrie.
115 Early Diagnosis of Cancer of Stomach. C. J. Fishman, Oklahoma City.
116 Diagnosis and Management of Gastric Ulcer. A. W. White, Oklahoma City.
117 Surgical Aspects of Chronic Gastric and Duodenal Ulcer. H. Reed, Oklahoma City.

Philippine Journal of Science, Manila

May, X, No. 3, pp. 177-245

118 Malaria in Philippine Islands. M. A. Barber, A. Raquel, A. Guzman and A. P. Rosa, Manila.

Surgery, Gynecology and Obstetrics, Chicago

September, XXI, No. 3, pp. 269-402

119 *Reconstruction of Common Bile Duct. A. J. Walton, London.
120 Gunshot Wounds of Larynx. L. Boehler, Innsbruck, Austria.
121 Military Surgery. T. Tuffier, Paris.
122 Cause of Tubal Pregnancy and Fate of Inclosed Ovum. F. P. Mall, Baltimore.
123 *Pylorus; Its Musculature. P. E. Truesdale, Fall River, Mass.
124 Diagnosis of Intrathoracic Neoplasms by Exploratory Puncture. H. Dayton, New York.
125 Osteomyelitis of Lower Jaw; Its Proper Treatment, Including Bone Grafting, Showing Necessity of Associating Dental Surgeon with General Surgeon. H. S. Dunning, C. A. McWilliams and V. E. Mitchell, New York.
126 *Clinical Aspect of Disease of Extraperitoneal Appendix Vermiformis; Report of Cases. A. Strauss, Cleveland.
127 Rôle of Fat Deposition in Cure of Abdominal Ptosis, Intestinal Stasis, and General Asthenic State. N. W. Jones, Portland, Ore.
128 Elephantiasis. L. L. Hill, Montgomery, Ala.
129 Relation between Degree of Menstrual Reaction in Endometrium and Clinical Character of Menstruation. E. Novak, Baltimore.
130 Primary Carcinoma of Appendix; Report of Three Cases. L. B. Meyer, New York.
131 *Simplified Method of Blood Transfusion; Report of Six Cases of Pernicious Anemia Treated by Massive Blood Transfusion and Splenectomy. N. M. Percy, Chicago.
132 *Autoplastic Repair of Recent Fractures. C. Davison and F. D. Smith, Chicago.
133 Efficiency of Coolidge Roentgen Ray Tube and Rationale of Radiotherapy in Treatment of Malignant Tumors. I. Levin, New York.
134 Nitrous Oxid in Labor. N. S. Heaney, Chicago.
135 Intestinal Obstruction Consecutive on Posterior Retrocolic Gastro-Enterostomy. A. V. Moschcowitz and A. O. Wilensky, New York.
136 Pseudofracture of Sesamoid Bones of Big Toe. W. W. Boardman, San Francisco.
137 *Closure of Right Rectus Incision. C. R. Robins, Richmond, Va.

119. **Reconstruction of Common Bile Duct.**—Walton cites a case in which the common duct ended abruptly about a quarter of an inch below the junction of the cystic duct. Below this the duct could not be recognized, being replaced by scar tissue. A flap was cut out of the duodenum and turned downward. A tube was inserted into the end of the common duct and sutured in place with twenty-day chromic catgut. The opening in the duodenum was sutured in its upper part, leaving only an opening sufficient to admit the tube. The tube was inserted into this opening, the duodenum being drawn up as close as possible to the cut end of the duct with a catgut suture. The flap of duodenal tissue was now sutured around the rubber tube so as to make a new bile duct, catgut sutures being used. A small drainage tube was inserted down to the junction. Three weeks later there was no leakage of bile from the wound, the stools were well colored with bile and the drainage tube was removed from the wound. One month after the operation the rubber tube was passed per rectum and the wound was quite dry.

123. **Pylorus; Its Musculature.**—Fifteen specimens were examined by Truesdale. He concludes that hypertrophy of the musculature of the pylorus, especially the pyloric sphincter, is found in the presence of gastric and duodenal ulcer. The hypertrophied muscle is a factor in obstructing the pylorus. Atrophy of the musculature of the pylorus is a sequence of gastro-enterostomy. Progressive atrophy of the pyloric muscle often defeats the success of gastro-enterostomy. These changes in the musculature are the result of varying periods of excessive function and of extended rest. Truesdale suggests that hypertrophy of the pyloric sphincter muscle may be of congenital origin.

126. **Extraperitoneal Appendix Vermiformis.**—The five cases analyzed by Strauss show that extraperitoneal position of the appendix is not uncommon and that the operator must be on the alert not to miss an extraperitoneal appendix and consider that it has sloughed away or that there was none. Disease of an extraperitoneal appendix may give a straightforward picture of appendicitis, or it may simulate perinephritic abscess or psoas abscess. It may cause a subhepatic abscess or a fecal fistula. Fetid pus obtained from an abscess incised in the right lumbar region should suggest to the operator a diseased extraperitoneal appendix as the etiologic factor.

131. **Simplified Method of Blood Transfusion.**—The tube used by Percy is a modification of the Brown tube. It consists of a glass cylinder 4 cm. in diameter, with a cannula leading from one end, the other end being drawn out into a tube about 1 cm. in diameter to which a Y connection is made. To one arm of the Y, a rubber tube is attached for suction to aid in filling the tube, and to the other arm a rubber bulb is connected to aid in injecting the blood. The tube differs from the Brown tube in that there is no side tube coming off from the cylinder, and the upper end of the cylinder, instead of being closed with a large cork, is drawn out into a tube for the Y connections. The cannula part of the tube is so constructed that it can be inserted directly into the vein of the donor and then the recipient.

132. **Autoplastic Repair of Recent Fractures.**—Davison and Smith claim that autoplastic treatment of recent simple fractures is indicated in cases in which nonoperative methods are inefficient. The transplant, in the medullary canal, in recent fractures of the shaft of long bones, supports the line of fracture, lives and grafts to the compact bone of the fragments. The transplant in cancellous tissue, when supported

by contact with compact bone grafts to the compact bone and infiltrates the spongy bone with new bone, supporting the line of fracture. The transplant eventually undergoes modification and absorption, as functional demand for support at line of fracture ceases.

137. **Closure of Right Rectus Incision.**—In Robins' method a straight Ochsner forceps is applied at each end of the incision and three on each side which grasp firmly the peritoneum and the posterior sheath of the rectus. Traction is made evenly on all the forceps by the assistant's holding them in his hand or by threading the rings of the forceps on another pair of forceps held horizontally. A continuous mattress suture is passed back and forth across the wound, in each case taking out all the slack in the stitch but never making any tension. If tension is made on any loop singly it may pull out. After the stitch has been placed for the entire length of the wound in this manner and while upward traction is made on the attached forceps, the suture is drawn taut by pulling on the end, while the assistant detaches the forceps that have been used for making traction upward. The wound is then closed in the usual manner.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Annals of Tropical Medicine and Parasitology, London

July, IX, No. 3, pp. 349-433

1 Bionomics of Glossina Palpalis in Sierra Leone; Its Pupal Habitats. W. Yorke and B. Blacklock.
2 Food of Glossina Palpalis in Cape Lighthouse Peninsula, Sierra Leone. W. Yorke and B. Blacklock.
3* Cultivation of Leprosy Bacillus. H. Fraser and W. Fletcher.
4 Reservoir of Human Trypanosome in Sierra Leone. W. Yorke and B. Blacklock.
5 Spirocheta Bronchialis, Castellani, 1907; Spirochetes of Human Mouth. H. B. Fantham.
6 Certain Animal Parasites of Domestic Stock in Sierra Leone. W. Yorke and B. Blacklock.
7 Etiology of Juxta-Articular Subcutaneous Nodules. J. B. Davey.
8 Ankylostomiasis in Dogs in Sierra Leone. W. Yorke and B. Blacklock.
9 Studies in Blackwater Fever. Case of Quartan Malaria Associated with Blackwater Fever. J. W. W. Stephens.

3. **Cultivation of Leprosy Bacillus.**—Fraser and Fletcher excised material from patients in fifty-two nonulcerating nodular cases of leprosy, a number far in excess of that recorded by any other worker, and employed the mediums of every claimant to success, but have not substantiated the claims of any of them. Their work has been carried out over a period of three and a half years. The only conclusions which that work permits are that the leprosy bacillus has not been cultivated and that the diphtheroids and other organisms are merely contaminators. There is no evidence that the acid-fast bacillus of Kedrowsky is the leprosy bacillus.

Bristol Medico-Chirurgical Journal, London

June, XXXIII, No. 128, pp. 73-128

10 Cotton-Seed Dermatitis and Its Cause, Pediculoides Ventricosus. J. A. Nixon.
11 Neuritis; Its Definition and Successful Treatment. N. Davies.
12 Women Doctors with Army in Field. H. B. Hanson.
13 Clinical Examination of Stools. G. H.-H. Almond.

Glasgow Medical Journal

August, LXXXIV, No. 2, pp. 81-159

14* Hematuria, Symptom; Its Causes and Diagnosis. D. Newman.
15* Ganglioneuroma of Sphenomaxillary Fossa. J. S. Dunn.
16 Trachoma. L. Buchanan.
17 Extra-Uterine Gestation with Intra-Uterine Pregnancy, Operation, Uterine Pregnancy Proceeding to Term. W. D. Macfarlane.
18 Simple Peptic Ulcer and Malignant Disease of Stomach. W. MacLennan.

14. **Hematuria Causes and Diagnosis.**—Three cases are reported by Newman. 1. Renal varix, hematuria, kidney enlarged and movable, no Roentgen-ray shadow, shoots of blood from left ureter. Nephrorrhaphy without improvement, resection, cure. 2. Symptomless hematuria during fifteen months, small at first, afterward large in amount. No symptoms pointing to origin of bleeding except cystoscopic appearances. Blood from right kidney increased on handling organ. Papilloma in pelvis, resection of papilla and tumor, good results. 3. Aneurysm of renal artery occupying the renal pelvis. Hematuria at first slight, afterward severe. No pain, plugging of left ureter with clot, severe hemorrhage, lumbar nephrectomy, cure.

15. **Sphenomaxillary Fossa.**—The patient from whom the tumor was removed in Dunn's case was a boy, aged 3 years, who had previously been quite healthy. A swelling was first noted, three weeks before operation, on the right temple, just behind the frontal process of the right malar bone. It was apparently of the size of a marble, and had a cystic feeling. At the operation it was found that the tumor was entirely covered by the temporal muscle, and when the latter was withdrawn it was seen to be encapsuled. When removal was attempted it was found that the tumor lay directly on the bare bone of the wing of the sphenoid, there being no intervening periosteum. A prolongation was found to extend downward into the sphenomaxillary fossa. The contents resembled gray matter of the brain. Microscopically the fibrous parts of the tumor represented a tumor of nerve-cells in which ganglion-cells, sheath-cells, and axis-cylinders were typically represented.

Journal of Obstetrics and Gynecology of British Empire, London

February, XXVII, No. 2, pp. 99-184

19* Alexander-Adams Operation and Its Results. D. G. Madill.
20. New Obstetric Forceps; "Forceps Fennica." S. E. Wichmann.
21 Breast Feeding; Some Functional Requirements of Gland and of Infant. H. K. Waller.

19. **Alexander-Adams Operation.**—Although over 200 patients have had this operation performed in the Rotunda Hospital during the past four years, there has been only one death, and that, Madill says, from causes entirely unconnected with the operation. Of forty-seven patients from whom replies to a questionnaire were received thirty-four had curettage and the Alexander operation performed; nine had curettage, amputation of cervix, and Alexander operation; and four had curettage, amputation of cervix, perineorrhaphy, and the Alexander operation. Of the thirty-four patients, twenty-eight replied that their periods are now regular every month, and are not excessive; three said that they came on every three weeks, and sometimes every fortnight; two said that the periods were still irregular and scanty (in these two cases the uterus was of the infantile variety); and one made no comment at all on her periods. That is to say, excluding the two cases of infantile uterus, twenty-eight out of thirty-two, or 87 per cent., reported themselves as being normal in their period since the operation; and four had curettage, amputation of cervix, perineorrhaphy, and the Alexander operation. Of the thirty- said that they had it slightly still, but a good deal less; and in two cases there was no change.

Menstrual pain was a symptom in only about twenty cases; four said they still have some pain; one said the pain was no better; and in the remaining cases there was no pain, or it was so slight as to be negligible. Intermenstrual pain was a cause of complaint in 90 per cent. of all the cases; in some patients the main symptom, pain in the back and left side. Twenty-six out of the thirty-four stated that they were now free from this pain, that is, over 75 per cent., the remainder either ignoring the question, or else reporting that there was no change. As to constipation, only nineteen out of the forty-seven reporting themselves as improved in this respect. Madill found almost no abnormal symptoms referable to the bladder, only one single patient having complained of anything disagreeable in that way, and her complaint was pain on micturition for a fortnight after the operation, but the pain had been low down at the urethral orifice. In only two cases out of the thirty-four was the general health not improved, the others, 96 per cent., emphatically stated that they felt much better and stronger, an excellent result for any operation.

Practitioner, London

August, XCV, No. 2, pp. 145-288

22 Effects of Cleft Palate Operations on Dental Arch. H. Blakeway.
23 Three Cases of Traumatic Subdural Hemorrhage. L. B. Rawling.
24 Use and Abuse of Purgatives. H. J. Campbell.
25 Joint Troubles Arising from Nerve Diseases. J. S. McArdle.
26 Interpretation of Opaque Meal Shadows in Diseases of Stomach. J. A. Codd.
27 Treatment of Fibroids by Roentgen Rays. F. L. Provis.
28* Ordinary and Atypical Migraine in Their Relation to Ocular Defects. G. F. C. Wallis.
29 Neurasthenia; Its Causes and Treatment. I. G. Cobb.
30 Recent Public Health Work. J. Priestley.
31 Some Practical Points in Therapeutics of Internal Secretion Extracts. T. B. Scott.
32 Case of Erythema Nodosum. D. Whyte.

28. **Migraine and Ocular Defects.**—Wallis gives the following summary of cases; 1. Boy suffering from severe periodic vomiting after meals unassociated with headache, and rarely with nausea; drowsiness, emaciation, and prostration marked. Cyclical vomiting is closely resembled. Complete relief by glasses, correcting slight compound hypermetropic astigmatism. 2. Migraine in an adult presenting most of the typical textbook symptoms; slight mixed astigmatism and presbyopia. Complete relief by glasses. 3. Migraine in a young girl; hemicrania and sickness, but no optical sensations. Hypermetropic astigmatism. Correcting lenses lessened greatly the severity and the frequency of the headache, and entirely relieved the sickness and the nausea. 4. Migraine in young lady, in whom attacks are replaced by nausea and momentary giddiness, and slight sickness; entire absence of headache or other phenomena. Father and (paternal) grandmother affected by classical migraine. Myopic astigmatism and hyperphoria; complete relief by correcting these.

Archives de Médecine des Enfants, Paris

June, XVIII, No. 6, pp. 293-348

33 *Rubeola in Children; One Hundred and Thirty-Two Cases. J. Comby.
34 Acute Encephalitis with Spirochetes in Lesions in Young Child with Inherited Syphilis. Péhu and Gardère.

July, No. 7, pp. 349-404

35 *Splenectomy in Treatment of Kala-Azar in Children. J. S. de Souza.
36 Pigmented Urticaria in Infant. J. Comby.
37 General Paralysis in Boy of 12. C. Leroux and M. Weinzweig.
38 Courses in Domestic Science. (Les écoles ménagères.) J. Comby.

33. **Rubeola in Children.**—Comby found the incubation period unusually long in his 132 cases. It ranged often up to sixteen or twenty days. The eruption is usually the first symptom to attract attention. There is little fever, and this disappears in from one to three days. The mucosa is not involved and there is no oculonasal catarrh. The eruption is irregular and capricious, but the glands in the neck, axillae or groin were enlarged more or less in seventy of the 132 cases. Differentiation is usually easy except in the scarlatinal type of, rubeola.

35. **Splenectomy in Children.**—De Souza removed the spleen in four cases for kala-azar and once for splenic anemia, all in children. The blood findings gradually returned more or less to normal, so that the splenectomy answered its purpose, confirming the importance of the spleen as a factor in leishmaniosis. The child is prepared for the operation by giving calcium chlorid for four or five days, and a few hours beforehand is given an injection of horse serum. None of De Souza's seven little patients died after the splenectomy, while he has lost several adult patients under similar conditions.

Berliner klinische Wochenschrift

August 2, LII, No. 31, pp. 805-828

39 Etiology of Typhus. (Zur Aetiologie des Fleckfiebers.) F. Proescher (Pittsburgh).
40 *New Fracture after Apparent Healing of Fracture from Projectile. (Refrakturen bei anscheinend ausgeheilten Knochenschussverletzungen.) E. Holländer.
41 Treatment of Gunshot and Shell Fractures. (Schussfrakturen.) W. Pincus.
42 Changes of Shape of Trypanosoma Brucei in Plasma Medium. R. Erdmann.

40. **New Fracture after Healing of Bone Fractured by Projectile.**—Holländer reports five cases in which after the fractured bone and the wound had apparently healed completely, some insignificant cause fractured it anew at the same point or near by. Some infectious process must be responsible for this, possibly to be traced to some small sequester, or the effects of the primary injury to the bone are felt over a longer stretch than was realized at first.

Correspondenz-Blatt für Schweizer Aerzte, Basel

July 31, XLV, No. 31, pp. 961-992

43 Appendicitis in General Practice. H. Näf.

Deutsches Archiv für klinische Medizin, Leipzig

CXVII, No. 3, pp. 175-360, Last indexed April 3, p. 1199

44 Practical Value of Refractometry of the Blood Serum. E. Reiss.
45 Clinical and Experimental Study of the Innervation of the Sweat Glands. (Schweissdrüsen.) H. Dieden.
46 Leukocyte-Attracting Action of Lymph. (Die Leukocyten anlockende Wirkung von art- und körpereigenen Sekreten und Gewebesäften.) H. Dold.
47 Pathogenesis and Clinical Study of Hemochromatosis. O. Roth.
48 Eruption in Course of Epidemic Meningococcus Meningitis. (Genickstarre.) G. B. Gruber.
49 *Tartar Emetic in Treatment of Internal Leishmaniosis. G. Di Cristina and G. Caronia.
50 Intestinal Disease and Prophylaxis in the Active Army. (Ueber Darmkatarrh, fieberhaften Darmkatarrh, Typhus, Ruhr und Mischinfektionen.) Arneth.
51 Clinical Study of Infantilism. G. Quaçri.

49. **Antimony and Potassium Tartrate in Leishmaniosis.**—This article was summarized in these columns, March 13, 1915, p. 952, when it appeared in an Italian journal. Di Cristina and Caronia now have a record of eleven cases, and they comment on the prompt recovery in six and the evident progress toward recovery of the other patients except two who have succumbed to intercurrent diseases.

Deutsche medizinische Wochenschrift, Berlin

August 5, XLI, No. 32, pp. 937-964

52 *Vaccine Therapy of Typhoid Still in Experimental Stage. L. v. Liebermann.
53 Percussion of Not Much Aid in Early Diagnosis of Tuberculous Apical Lesions. (Bedeutung der Perkussion für die Diagnose der Lungenspitzentuberkulose mit bes. Berücksichtigung der Bestimmung der Krönigschen Spitzenfelder.) A. Schneider.
54 Pedunculated Flaps for Plastic Operations, especially after Amputations. F. Franke.
55 *Superheated Air in Gynecology. (Zur Heissluftherapie.) H. Walther.
56 Transportation after Wounds of the Skull. (Schädelverletzungen aus Leichtkrankenzügen und den Transport Schädelverletzter.) H. Canon.
57 How Long Should Treatment of Crippled Soldiers Be Kept Up? (Bis wann dürfen und sollen Kriegsbeschädigte behandelt werden?) Blind.

52. **Vaccine Therapy of Typhoid.**—This communication is a report presented by the national board of health in Hungary to the minister of the interior on the question of introducing vaccine therapy into the typhoid hospitals. It says that physicians in Hungary have reported a favorable influence from vaccine therapy in about 40 or 50 per cent. of the cases in which it has been used, but the injections have to be made intravenously to be really effectual. This fact and the comparatively small number of trials of vaccine therapy on record to date render it inadvisable to sponsor this treatment as a routine measure.

55. **Superheated Air in Gynecology.**—Walther's experience has convinced him that superheated air is destined to an important position in treatment of chronic pelvic trouble. Gynecology to date has neglected to utilize properly Bier's hyperemia treatment and has lost thereby. With the exception of a few refractory cases, he obtained excellent results in chronic parametritis and perimetritis with all their consequences, in old gonorrheal affections and in dysmenorrhea from functional ovarian disturbance—and this group, he declares, is larger than generally recognized. In eight or ten cases conception seemed to have been favored by the hyperemia thus induced in the ovaries. Hot air treatment might well be given a trial, he adds, in treatment of sterility. The effect was always prompt in amenorrhea except when it was due to anomalies in development. He gives the superheated air a trial in all cases of amenorrhea with infantile uterus and has had excellent results. Chronic bladder disturbances, especially those secondary to displace-

ment of the uterus, and also irritable bladder were favorably modified, the pain always subsiding. He never ventures this treatment in acute gynecologic affections nor in the febrile subacute; tuberculous abdominal processes he also regards as contraindicating this treatment, likewise fever from any cause. He has found it useful in curing subjective disturbances after appendectomy or vague pain from old chronic peritonitis.

In some cases he found that tumors became palpable under the superheated air when before they had been masked by a general tumefaction. When, in a puzzling case, fever develops under the hot air treatment, operative measures are called for and the operation is facilitated by the greater movability of the organs. He has found electric lights the most convenient form of applying the heat, but warns that success depends on an exact diagnosis, on positive exclusion of complications, having the treatment applied by the physician himself or by a trained person under his supervision, and having the patient in the hospital, never as an out-patient. During the last few years he has been impressed with the advantages of covering the abdominal walls and thighs with a warmed moist sheet. The absorbent action of the heat seems to be increased by this while the unpleasant action of the heat on the skin is done away with. It acts like a compress. He usually starts with 60 or 70 C. and gradually increases this in the following sittings to 100 C. These temperatures were always borne well.

Deutsche Zeitschrift für Chirurgie, Leipzig

May, CXXXIII, No. 3, pp. 233-328

38 *Cryptogenous Peritonitis; Eleven Cases. H. F. Brunzel.
39 Plastic Operations on the Cheek. (Meloplastik.) E. Schepelmann.
60 *Diagnosis of Horse-Shoe Kidney. (Hufeisenniere.) G. Marzynski.
61 Gunshot Wounds in the Roentgen Picture. Hagedorn.

June, No. 4, pp. 329-424

62 *Diagnostic Significance of Displacement of the Pylorus in Different Positions. A. Wydler.
63 Substances which Stimulate Growth of Connective Tissue. (Stoffe die das Wachstum des Bindegewebes anregen.) Rost and R. Werner.
64 Isolated, Perforating Rupture of the Mesentery from Contusion. J. Dubs.
65 Embolism in Arteries of the Greater Circulation after Fracture. (Paradoxe Embolie bei Fraktur.) N. Pans.
66 Abscess in Spleen of Woman of 38. N. Pans.
67 *Partial Recovery of Vision after Removal of Hypophysis Tumor. E. Schepelmann.
68 First Treatment of Fractures of the Long Bones in War. (Zur Behandlung der Extremitätenschussbrüche im Felde.) F. Weissgerber.

58. **Cryptogenous Peritonitis.**—Brunzel gives the details of ten cases of peritonitis in which it was impossible to trace the inflammation to a local source. Six patients were children from 3 to 16 years old, the others, three men and one woman, all under 44. In seven the pneumococcus seemed to be solely responsible, staphylococci in one, and both together in another case. There was a history of gastro-intestinal disturbance in every instance, and two of the patients had been having acute tonsillitis. In one case the primary and sole focus to be discovered was in the arm and hence the peritonitis could have been only of blood-borne origin. Only two of the patients recovered, a boy of 12 and a young man. The others succumbed in spite of operative measures. In an additional group of three cases of what seemed to be appendicitis the appendix was found apparently normal. They all recovered. The grave prognosis with cryptogenous peritonitis is due to the fact that there is no primary focus to be evacuated and healed.

60. **Diagnosis of Horse-Shoe Kidney.**—Marzynski remarks that this deformity is proving to be more common than was formerly supposed. It has been found to date on an average once in 555 necropsies. He has encountered it in seven cadavers, and found that the horse-shoe kidney was always located lower down than the normal kidneys, and farther forward, and the larger parts can be felt nearer the median line. The pelvis also can be palpated on the anterior wall of the two halves of the kidney. The ureters are also abnormally short. The lower margin of the two halves of the single kidney converges downward instead of the upward and inward slope of the lower margin of the normal separate kidneys.

62. **Displacement of the Pylorus with Change of Position.**—The pylorus region is most movable in normal conditions. If it does not change its position when the patient lies and stands in turn, this is presumptive evidence of malignant disease. Roentgenoscopy should therefore be applied both reclining and standing.

67. **Hypophysis Tumors.**—In Schepelmann's case a woman of 55 had a number of teeth pulled to relieve what she supposed was toothache, but the pains persisted and grew worse, localized mainly in the left temple and jaw. Gradually other symptoms came on suggesting a hypophysis tumor and the woman became totally blind, the headache continuous and agonizing. He removed the hypophysis by Eiselsberg's modification of Schloffer's operation, through the nose, and all pain was permanently arrested. Vision returned in satisfactory measure in three months.

Medizinische Klinik, Berlin

August 1, XI, No. 31, pp. 849-876

69 *Neuroses among the Wounded. (Soll man wieder "traumatische Neurose" bei Kriegsverletzten diagnostizieren?) M. Nonne.
70 *Dropsy and Anemia on Exclusive Potato Diet. (Die Hungerkrankheit.) O. Strauss.
71 *Behavior of Regenerating Nerves. (Methode, den Erfolg einer Nervennaht frühzeitig zu beurteilen.) P. Hoffmann.
72 Hypofunctioning of the Thyroid. (Zur Klinik infantiler Hypothyreose.) L. R. v. Korczynski. Concluded in No. 32.
73 Gunshot and Shell Wounds of the Lungs and Their Complications. M. Bockhorn.
74 *Ophthalmic Hemicrania. (Anaphylaktische Erscheinungen im Symptomenbilde der Hemicranie.) F. Rohrer.
75 Orthopedic Treatment of Pain in the Feet. (Plattfuss, Metatarsalgie, Fussgeschwulst.) H. Spitzy and A. Hartwich.

69. **Traumatic Neuroses in War.**—Nonne remarks that the hysteria acquired in the trenches is often accompanied by vasomotor phenomena. Also that the syndrome compounded of symptoms of hysteria, neurasthenia and hypochondria plus vasomotor anomalies may occur without trauma, and hence it should not be labeled traumatic neurosis, as many are inclined to call it. The sudden and complete recovery in many instances under suggestion also discredits the assumption of anatomic changes in the central nervous system as the origin of the syndrome. The most frequent cause for its development is explosion of a grenade, and the emotional shock is the main factor.

70. **"Hunger Sickness."**—Strauss has encountered in Poland a large number of cases presenting symptoms suggesting advanced heart disease and ascites plus renal dropsy. The lids are puffed up as in the severest forms of kidney disease, but the urine is free from albumin or casts and the heart findings are normal. There is also a tendency to anemia, but the hemoglobin percentage is within low normal range. Complicating scorbutus and Werlhof's disease are common, as also all kinds of diseases. Those presenting the above syndrome are apathetic and succumb to it in time unless treatment is promptly applied. This consists merely of proper food. With better nourishment and improved hygienic environment the edema subsides and strength returns. In the regions where this syndrome is prevalent, the inhabitants for many months have had nothing to eat but potatoes, and often these have been frozen or rotten. Potatoes grown on damp soil are even less nutritious than otherwise. A one-sided potato diet is unable to protect against the dangers of inanition, and the experiences with this syndrome encountered so frequently now in Poland supply a living proof of the statements of the physiologists in regard to the danger of going below a certain minimum of albumin in the diet.

71. **Progress of Regeneration of Nerves.** — Hoffmann describes the exact technic for testing the effect of suturing a nerve by percussing the regenerating sensory fibers of the nerve below the suture to elicit a sensation in the region of sensory paralysis. This test has shown the promptness of the regeneration in some cases. In one instance the regen-

erated stretch was 17 cm. long and as this occurred in seventy-five days, this represents 0.225 cm. a day. The sensation is like that in a limb that has "gone to sleep." A single tap does not elicit it but the newly regenerated nerve is readily affected by summation of stimuli. Pressure with the thumb may also elicit the sensation but this is less reliable.

74. **Symptoms of Anaphylaxis in Migraine.**—Rohrer reports the case of a young physician who has kept a detailed graphic record of the attacks of ophthalmic hemicrania which he has been having since the age of 9, although the intensity has diminished during the last ten years. The features of the case exclude apparently vasomotor phenomena as the cause of the trouble, but suggest that in one hemisphere of the brain there is a localized production of reaction bodies. These combine with some toxin circulating in the blood, and anaphylaxis is thereby induced. The assumption is thus that hemicrania is the result of some toxic influence acting on some predisposition on the part of the organism, the combination inducing the phenomena of anaphylaxis. Among the arguments advanced to sustain this assumption are that so many of the symptoms of a "sick headache" are like those of anaphylactic shock, and, further, that anaphylaxis seems to be handed on to the offspring only by the mother animal. Statistics of sick headache display this same preponderance of maternal transmission. It would be interesting to learn whether injection of serum from a person during an attack of migraine would bring on an attack in those subject to it.

Münchener medizinische Wochenschrift, Munich

August 3, LXII, No. 31, pp. 1037-1072

76 *Bacteriology and Prophylaxis of Epidemic Meningitis. R. Klinger and F. Fourman.
77 *Indicanemia. G. Haas.
78 *Unfavorable Experience with "Open Puncture of the Pleura." W. Stepp.
79 *High Frequency Current May Soften Cicatricial Tissue. (Gedämpfte Hochfrequenzströme als narbenerweichendes Mittel.) F. Becker.
80 Flask for Estimating Urea and Sugar Content of Urine. (Der einfachste Apparat zur quantitativen Bestimmung des Harnzuckers und Harnstoffs.) R. Weiss.
81 Tangent Wounds of the Thorax Walls. H. Burckhardt and F. Landois.
82 Atypical Multiple Sclerosis and Syphilitic Spinal Affections in the Active Army. H. Curschmann.
83 Treatment of Gunshot and Shell Fractures of Upper Arm. C. Goebel.
84 Metal Shield for Covering Exposed Brain; Skin Sutured over Shield. (Schädelwunden.) R. Blegvad.
85 Moist Dressings. (Der feuchte Verband.) O. Langemak.
86 *Nourishing Beverage. (Nährgetrank für Schwerverwundete im Feldlazarett.) W. Peyer.
87 Pitch for Treating Infected Wounds. (Pix liquida zur Behandlung infizierter Wunden.) C. D. Kessiakoff.
88 Improvised Orthopedic Apparatus. E. v. Redwitz and Welty.
89 Woven Wicker Splints. (Flechtwerkschienen für Stutzverbände.) Kessler.
90 Directions in Regard to Potable Water on a Campaign. (Merkblatt über Wasserversorgung im Felde.) H. Serger.
91 Urochromogen Reaction not Pathognomonic in Typhoid. Mülhens.
92 Hernia in Soldiers. (Die Hernien der Linea alba im Kriege.) Rumpf.

76. **Prophylaxis of Epidemic Meningitis.**—Klinger and Fourman relate that the bacteriologic findings in epidemic meningitis and the large number of healthy carriers render strict isolation impossible for any but the sick. They think that meningococci are like pneumococci in that, while comparatively prevalent, yet they only rarely induce the special disease. They warn against arousing antagonism by overzeal, and state that the simple preventive measures they applied proved effectual, namely, improving the conditions as to hygiene, reducing the crowding of the sleeping rooms, enforcing cleanliness, ample nourishment, keeping the men in the open air, changing barracks for the different troops, but, above all, watching that none of the men get overfatigued or chilled, and thus predisposed to yield more readily to the infection.

77. **Indicanemia.**—Haas states that he has found indican constantly in the blood of healthy persons; hence its mere presence has no pathologic significance. Abnormally high indican content may warn of impending insufficiency of the kidneys. Jolles' test for quantitative determination of indican in the urine is proving equally instructive for the blood, he says, as it is far more sensitive than any other test for indican in the blood and urine.

78. **Open Puncture of the Pleura.**—Stepp relates the history of a case in which he applied Schmidt's technic (described in these columns August 21, p. 750). The results were serious; pneumothorax developed and the symptoms were alarming for a time. The patient had bilateral pleurisy with effusion and pericarditis. The serious symptoms from the pneumothorax were not relieved until most of the air was aspirated out.

79. **Electricity Softens Scar Tissue.**—Becker reports nineteen cases to illustrate the way in which cicatricial tissue softens up and stretches under the high frequency current.

86. **Nourishing Beverage.**—A drink that can be used hot or cold and contains nearly 1,500 calories to the liter, is made with 45 gm. yolk of egg (3 yolks); 50 gm. butter; 50-100 gm. dextrinized flour or zwieback; 50 gm. sugar; 400 gm. milk; 200 gm. water; 5 gm. salt; and 200 gm. port wine. The flour is mixed with cold water and boiled in the milk for five or ten minutes. The butter is added and the yolks, beaten with water. After boiling up several times the sugar is added and, when half cooled, the wine. He has the drink made by a pharmacist and the hospital patients all like it. By leaving out the butter and using the smaller quantity of flour, the liter represents 960 calories; with the butter 1,300.

Therapeutische Monatshefte, Berlin

July, XXIX, No. 7, pp. 357-420

93 *Treatment of Dyspepsia in Infants. L. Langstein.
94 *Uterine Cancer. (Therapie des Gebärmutterkrebses.) W. Weibel.
95 Foreign Secret Proprietaries and Nostrums. (Die Geheimmittel des feindlichen Auslandes.) Kantor.
96 Combined Treatment of Tetanus with Magnesium Sulphate and Various Narcotics. B. v. Issekutz.
97 Substitutes for the Ordinary Food Albumins. (Bemerkungen über Ersatzmittel der gebräuchlichen Nahrungseiweisse, insbes. über Blut.) C. von Noorden.
98 Experiences in a Hospital in the Home Zone. E. Melchior.
99 Case that Sustains the Nontoxicity of Adalin. (Beitrag zur Ungiftigkeit des Adalins.) O. Schiftan.

93. **Dyspepsia in Infants.**—This is a chapter out of Langstein's recently published work on infant feeding and infant metabolism. He says that even when the child with dyspepsia is put on breast milk, the weight continues to decline and the child to look sick during the course of two, three or four days. The weight drops off the faster, the larger the proportion of carbohydrate and whey in the food the child had been getting previously. The loss is seldom over 300 or 400 gm. If the sickness lasts over three or four days, further steps must be taken to check the fermentations, and preparations of albumin may be added to the breast milk. If the infant has been getting artificial food, nothing but water must be allowed for twelve to twenty-four hours; then food mixtures can be given, remembering that the sugar and whey are what keep up the fermentations, hence they should be kept down to the minimum. He suggests four forms of food, diluted milk with dextrin malt, rice or oatmeal, not allowing over 1 or 2 per cent. of the carbohydrate; gruel, with from 1 to 3 per cent. flour, to choke out the fermentation. This is suitable only for older infants. The third type is diluted milk enriched with albumin, with little or no carbohydrate. The fourth type includes albumin milk; buttermilk without sugar but enriched with some form of flour or with cream; half-and-half kefir, or, best of all, albumin milk. After twenty-four hours of tea diet, one of the above mixtures is given, to a total of 200 or 300 gm. in the course of the five or six feedings. In two or three days the weight begins to increase. The child should not be kept on the starvation ration longer than twelve or twenty-four hours. He describes in detail the normal course on each of the above four types of feeding.

When the dyspepsia is of infectious origin it becomes exceptionally important to restrict the diet to check fermentations, and ward off or cure vomiting or anorexia.

Vomiting is a reliable symptom of infectious dyspepsia, and it may require some sedative to reduce the hyperesthesia of the gastric mucosa that is keeping up the vomiting, which in itself testifies to the infectious nature of the trouble. The best means to combat it, he declares, is a sedative to reduce the hyperesthesia of the gastric mucosa, such as novocain, 0.001 gm. at a time, four or five times a day before feeding. Rinsing out the stomach once or twice is also useful. Anorexia is more a sign of a neuropathic constitution than of the dyspepsia. If it persists, the child should be fed forcibly. Feeding through a tube is a harmless and useful procedure which the physician has no need to dread. It can be repeated three or four times a day, giving water still more frequently. If the child refuses water, it is best instilled in the rectum. With dyspepsia ex infectione, a return to the previous diet is generally possible earlier than with the alimentary form of dyspepsia, that is, in two or three weeks.

94. **Uterine Cancer.**—Weibel reports from Wertheim's service at Vienna 120 cases of primary uterine cancer treated by radiotherapy including 36 in which both radium and the Roentgen rays were applied. In all the operable cases the cancer is removed; 120 such patients were given prophylactic exposures afterward. In the primary cases the outcome of the radiotherapy was excellent. The tumors disappeared altogether or subsided notably. Infiltrations around the uterus often proved surprisingly refractory. Weibel's concluding word is "to the same extent as radiotherapy is promising with a primary tumor, so is the outlook poor with deep-seated recurrence."

Zeitschrift für Geburtshülfe und Gynäkologie, Stuttgart

June, LXXVII, No. 2, pp. 279-536. Last indexed July 10, p. 207

100 **Influence of Ovaries on Growth of Uterus in the Fetus and Child, and Importance of Age Period at Time of Castration.** (Einfluss des Eierstocks auf das Wachstum des Uterus.) A. Mayer.
101 **Cystic Colloid Malignant Tumor in the Ovary; Two Cases.** (Struma ovarii.) G. L. Moench.
102 **Primary Cancer of Vermiform Appendix.** W. Lahm.
103 *Malignant Myoma of the Uterus. W. Lahm.
104 *Creatinin Test of Functioning of Diseased Kidneys in the Pregnant. (Funktionsprüfung erkrankter Nieren bei bestehender Schwangerschaft zur Entscheidung der Frage der künstlichen Unterbrechung.) M. Orlovius.
105 **Studies of the Dynamics of the Pulse in the Pregnant and Parturient : Energometry.** W. Bigler.
106 **Case of Cervical Placenta.** G. Tiegel.
107 *Retroflexion of the Uterus. E. A. van Teutem.
108 **Associated Cancer in Uterus and Ovary.** (Kombination der bösartigen Geschwülste des Uterus und des Eierstockes.) E. Bassani.
109 **Histology of the Uterine Mucosa.** S. Aschheim.

103. **Malignant Uterine Myomas.**—In the case reported by Lahm the myoma had grown not only into the ovarian vein of the broad ligament but also into the lymphatics in the uterus wall and left ovary. The anatomic structure was apparently benign except for a hint of sarcomatous growth.

104. **Tests of Functional Capacity of the Kidneys in the Pregnant and Parturient.**—Orlovius extols the harmlessness and various advantages of the creatinin test to determine the functional capacity of diseased kidneys, especially in the pregnant. The creatinin content of the urine is determined every sixth hour during one day, and the next day the woman ingests 1.5 gm. creatinin in 200 c.c. of sweetened water. The urine is then tested anew for the creatinin content at six-hour intervals. He here reports the findings in three nonpregnant controls; in ten pregnant healthy controls, and in six pregnant women with symptoms of serious kidney trouble. The data in each case are tabulated and this test elimination of creatinin is thus shown to be instructive as an index of the work the kidneys are able to do, and thus settle the question as to whether it is wise to allow the pregnancy to go on to term.

107. **Retroflexion of the Uterus.**—Van Teutem lists a number of minor points which, taken together, suggest possible retroflexion of the uterus, which, by the way, was mentioned in Hippocrates' writings. It undoubtedly has pathologic importance. In women who have borne children it usually induces pains generally in the abdomen on one or both sides, with profuse, frequent and irregular menses and leukorrhea. Less frequently it entails dysmenorrhea and leads to abortion, frequent and painful micturition and pain at defecation. Occasionally it may entail pains in one or both legs. In nulliparas the disturbance generally is in the form of pains in the abdomen on one or both sides, dysmenorrhea, profuse, frequent and irregular menses and leukorrhea. Less frequently it entails frequent and painful micturition and pains at defecation; still rarer are pains in one or both legs. Sterility is the typical symptom of congenital retroflexion. Retroflexion without symptoms occurs only exceptionally. The results of the Alexander-Adams operation and of pessary treatment are about the same in regard to symptoms; conception occurred later in 54 per cent. of the 235 women whose retroflexion was corrected by a pessary, and in 45.6 per cent. of the 217 operated on by the Alexander-Adams technic. The latter was applied principally to virgins and nulliparas. The advantages of active measures are shown anew by the fact that among 177 women whose retroflexion was not corrected, 74 per cent. still complain of their symptoms, and only 26 per cent. call themselves cured.

Zeitschrift für Kinderheilkunde, Berlin

May, XII, No. 6, pp. 369-440

110 **Growth of the Prematurely Born in the First Months.** (Wachstum der Frühgeburten in den ersten Lebensmonaten.) A. Reiche.
111 **Congenital Syphilis in the Prematurely Born.** (Lues congenita bei Frühgeburten.) A. Reiche.
112 **Acidity of Infant Stomach.** (Acidität des Säuglingsmagens.) R. Hess.

Zeitschrift für klinische Medizin, Berlin

LXXXI, Nos. 5-6, pp. 355-496. Last indexed June 12, p. 2028

113 **Polyuria with Experimental Subacute Toxic Nephritis.** (Wesen der experimentellen Ausschwemmungsnephritis—Pohl—nach Uranvergiftung.) L. Dunner.
114 *Diagnosis from the Blood-Findings of Metastatic Tumors in the Bone Marrow. (Zur Diagnostik der metastatischen Knochenmarkstumoren aus dem Blutbefund.) J. von Roznowski.
115 **Soldier's Heart.** (Herzbefunde bei Kriegsteilnehmern.) C. Maase and H. Zondek.
116 **Mechanism of Development of Paroxysmal Tachycardia.** S. La Franca.
117 *Experiences with Tumor Autolysates in Treatment of Malignant Neoplasms. R. Bauer, R. Latzel and E. Wessely.
118 **Vaccine Therapy of Typhoid.** G. Holler.
119 **Case of Adhesive Mediastinopericarditis.** D. de V. Reilingh.
120 *Connection between Chronic Bronchitis, Asthma and Gout. (Lungenerkrankungen bei Gicht.) A. Mayer.

114. **Blood Findings with Metastatic Tumor in the Bone Marrow.**—Roznowski concludes, from the four cases he reports, that the appearance of myelocytes in considerable proportions in the blood in cachexia, especially in the secondary anemia of those known to have cancer, should suggest metastasis in the bone marrow. It is possible, however, for the blood picture to be approximately normal even under these conditions. As a rule there are large numbers of normoblasts, sometimes also megaloblasts, with or without leukocytosis, and these findings point to metastases even in the absence of other symptoms.

117. **Treatment of Cancer with Autolysates.**—This work issues from the second university medical clinic at Vienna, in charge of Ortner. The autolysates were made by chopping the tumor tissue, leaving it in physiologic salt solution for three days in the refrigerator, one part tumor tissue to four or five parts saline. The suspension was then pasteurized at about 56 C. and brought to a specific gravity of about 1.009. The doses injected intravenously ranged from 2 to 20 c.c. Subcutaneous doses were correspondingly larger. Every effort was made to ensure asepsis in the preparation of the autolysate so that no antiseptic need be added. It is a limpid yellow fluid with a neutral or slightly acid reaction. A few drops of a 0.5 per cent. solution of sodium hydroxid (*Sodalösung*) are then added to make it weakly alkaline, and it is heated anew for an hour to 52 C. The autolysate is then distributed in vials representing each one dose, the mouth is fused, and the vials are kept on ice.

The cancer material used was mostly from mammary cancers; in only one case of sarcoma, one of breast cancer and one of a hypernephroma, the suspension was made from the patient's own tumor.

The history of nonoperative measures in treatment of malignant disease is reviewed for comparison, especially the previous history of autolysates to date. The metabolic findings are tabulated from two of the cases here reported, the data including the period before, during and following the autolysate treatment. The blood and urine never showed any signs of hemolysis from the treatment, and the benefit derived—although necessarily modest in these advanced cases—certainly justifies further trials of autolysates according to the judgment of Bauer and his co-workers. They add that there is much to sustain the hope that passive immunization might be realized by this means. This is suggested in particular by the Abderhalden reaction becoming positive afterward. The influence of subcutaneous autolysate treatment was particularly marked in a case of lymphatic leukemia. This throws light not only on treatment but on the etiology of this disease. The cancer patients treated were in an inoperable stage or had just been operated on. Five cases are reported in detail to demonstrate the character of the improvement. No symptoms suggesting anaphylaxis developed in any instance but there was a stormy reaction in some cases. It occurred only with the first or second injection, the following ones not eliciting appreciable symptoms. In one case of mammary cancer for instance, the first injection of 2.5 c.c. was followed merely by a slight rise in temperature, but the second, with 5 c.c., caused chills, tachycardia, local and abdominal pain, and sent the temperature up to 38.3 C. The following injections showed scarcely any reaction; eight were given in all. Some of the symptoms of the reaction suggested that there might be acute hyperemia in the tissues or organ involved.

120. **Gout of the Air Passages.**—Mayer has been examining forty patients with chronic bronchial catarrh or asthma or both, but without any history of gout, seeking to discover signs of the gouty diathesis. He does not regard lumps suggesting tophi as conclusive, for many such lumps are free from urates, and he found one once which proved to be a fibroma.

Derangement of the purin metabolism he regards as the true sign of gout, and this was pronounced in four of the eight with tophi. In the other four with tophi the purin metabolism seemed to be normal. On the other hand, derangement of the purin metabolism was pronounced in five who had no signs of tophi and no "cracking" of joints. The exacerbation of the bronchitis followed influences exactly similar to those known to bring on attacks of gout in the predisposed. These exacerbations resembled the clinical picture of bronchial asthma but differed from this in that neither Charcot-Leyden crystals nor increased numbers of eosinophil leukocytes could be discovered. During the exacerbation the elimination of uric acid in the two cases tested behaved exactly the same as in true gout, the waves of elimination rising and falling as in true gout but never reaching such extremes as in the latter. There was further a history of true gout in the family in nearly every case, with numerous diabetics, and the children all showed signs of the exudative diathesis. There seems little doubt as to the close connection between this "lung gout" and the exudative diathesis. Deposits of urates have never been found in the lungs, to his knowledge, but this, he thinks, is because the lung tissue has evidently very little affinity for uric acid.

The practical conclusion is that chronic bronchial catarrh and asthma should be treated as if for genuine gout, and everything possible done to facilitate the breaking up and elimination of uric acid. Alkaline mineral waters have proved particularly useful in his experience. He adds that it is possible that radium therapy—which seems to be doing good service in true gout—might find here a new province to conquer.

Zeitschrift fur Urologie, Berlin

IX, No. 6, pp. 201-240

121 History of Development of Diagnosis from the Urine. (Zur Entwicklung der klinischen Harndiagnostik in chemischer und mikroskopischer Beziehung.) E. Ebstein. To be continued.

122 Notes of a Urologist with the Active Army. (Die deutsche Urologie im Weltkriege.) H. Lohnstein. Commenced in No. 5.

Zentralblatt für Chirurgie, Leipzig

August 7, XLII, No. 32, pp. 569-592

123 *Additional Proof of Prophylactic Efficacy of Iodin. (Erdinfektion und Antiseptik. Hauptergebnisse einer experimentellen Untersuchung.) C. Brunner.

124 Fascia Implant as Substitute for Fascia Sheath. (Ersatz intermuskulärer Fascienscheiden durch frei transplantierte Fascie.) W. Burk.

123. **Iodin Treatment of Wounds.**—Brunner has been imitating Friedrich's experimental work with contaminated wounds, that is, infecting wounds with dirt or stair sweepings. His findings confirmed the latter's assertions that the infection of the wound remains a strictly local process for six or eight hours. Not until later than this does the infection spread beyond the primary focus. During this interval it may be possible to arrest the infection before it spreads farther, and Brunner reports extensive experimental research in this line to discover the substance best adapted to kill all the germs while they are still localized in the focus. The experiments were made on guinea-pigs, 100 in all. They testified that tincture of iodin is the most effectual for warding off infection, including tetanus. Prophylactic instillation in the first aid proved effectual even when there was a delay of thirty hours before the wound was cleaned and definitely dressed. This occurred even when the wound was sutured, while many of the control animals developed fatal tetanus.

All the evidence testifies to the effectual action of tincture of iodin applied within the first five hours at least. When the wound is mechanically cleaned and rinsed out with hydrogen peroxid and treated with tincture of iodin, then Friedrich's interval can be long surpassed with safety. It is evident that the iodin elicits a defensive reaction in addition to its antimycotic power. In Lebsche's latest (unpublished) research a deep wound in muscle tissue was infected with dirt containing anthrax germs. It was then treated with tincture of iodin or iodin-alcohol (1 per cent. iodin; 70 per cent. alcohol) and two thirds of the guinea-pigs were saved by it from otherwise certain death. In the other third the general infection was retarded for a day. Most of Brunner's experiments were made with instillation of merely 15 or 20 drops of the iodin-alcohol.

Zentralblatt für Gynäkologie, Leipzig

August 7, XXXIX, No. 32, pp. 557-570

125 *Acute Puerperal Total Inversion. T. Jaschke.

125. **Acute Puerperal Inversion.**—Jaschke remarks that in most of the 600 puerperal cases of acute inversion of the uterus on record, unusual relaxation of the uterus and traction on the still adherent placenta were evidently responsible for the mishap. In the case reported he painted the vulva with tincture of iodin and then pushed the fundus of the uterus upward with his fingers forming a cone, not releasing the pressure until the uterus had been reduced to place and been tamponed around the hand. Before this, the fundus sagged anew at each attempt to withdraw the fingers. While the fundus was thus supported by the fingers, the uterus was massaged from without and a slight contraction was evident. A little ergot preparation was given at the same time. The tamponing of the uterus was aided by the hand still in its cavity, and when the uterus and vagina had thus been packed, counterpressure was applied from without by a roller pressure bandage. No saline or other stimulants were given, aside from 2 c.c. camphor at the beginning of the intervention to keep the heart action good. There were no symptoms of shock, and the bleeding from the uterus had stopped almost entirely as it became inverted.

Zentralblatt für innere Medizin, Leipzig

August 7, XXXVI, No. 32, pp. 501-516

126 *Water Accumulating in Mouth from Antiperistalsis. (Wasser im Munde, Wasserspeien, Wasserkolk.) F. Schilling.

126. **Accumulation of Water in the Mouth.**—Schilling reports six cases in which the patients complained of water coming up into the mouth, at times, after a brief period of discomfort in the stomach or abdomen. Occasionally there may be nausea, but usually this tasteless fluid accumulates in the mouth without other symptoms. He ascribes it to irritation from drugs or to chronic inflammation of the throat, esophagus or stomach. One of his patients had had nervous dyspepsia with this up-coming of water two or three times a day. She had been toothless for several years, and he has noticed that loss of the molars frequently entails in the course of time this up-coming of water. Defective teeth entail disturbances in throat, esophagus and stomach. Esophagitis was evident in one case; the water came up in this case evenings and nights. One man with chronic achylia experiences pain over the stomach and bowel as his mouth fills with the water, and he feels nauseated. No relics of food were found in the fluid in this case, but he always feels nauseated at the same time. The phenomenon is distinct from what is generally known as regurgitation. Another patient, at the menopause, has chronic gastritis, and often has to clear her throat and spit out a mouthful of fluid three or four times in succession. The same follows sometimes the swallowing of food. In still another case a man with gastric hypersecretion and hyperacidity one time had a fluid gush from his mouth, which seemed to be nothing but duodenal juice. The hyperacid gastric secretion had evidently irritated the duodenum and caused the gush which passed on through the stomach up into the mouth. In all the other cases the water was practically tasteless, the specific gravity from 1,006 to 1,014, the reaction alkaline.

Policlinico, Rome

August 8, XXII, No. 32, pp. 1057-1088

127 Preparation of Anticholera Vaccine. D. Ottolenghi.
128 *Obesity and Life Insurance. J. Romanelli.
129 Malta Fever in Southern Italy; Two Cases. L. Tonnini.

August, Medical Section, No. 8, pp. 341-388

130 *Vaccine Therapy of Typhoid Fever. F. Boselli.
131 *Ferments in the Blood and Urine in Nephritis. (Sui fermenti presenti nelle orine in vari stati patologici.) A. Lorenzini.
132 *Differentiation between Exudates and Transudates. B. Maiolo. Commenced in No. 7.

128. **Obesity and Life Insurance.**—Romanelli relates that one Italian life insurance company during 1913 and 1914 rejected 308 applicants on account of obesity; 36 per cent. were rejected on account of the obesity alone, over 21 per cent. for glucosuria, 10 per cent. for nephritis; 7.18 per cent. for albuminuria; 5.84 per cent. for heart disease, and 5.19 per cent. for arteriosclerosis. As long ago as the seventeenth century, Bacone commented on the early mortality when obesity develops in the young. Romanelli remarks that women are more predisposed to obesity than men on account of their more sedentary life and also from reasons connected with the organs of reproduction. Certain modes of life and lack of exercise contribute to the development of obesity and this in turn brings a distaste for exercise, so that a vicious circle is soon set up, bringing in its train disturbed metabolism, but above all arteriosclerosis, particularly of the heart and kidneys, while the abdominal fat interferes with the movements of the diaphragm—all rendering the obese poor risks.

130. **Vaccine Therapy of Typhoid.**—Boselli gives the details of treatment in seventeen cases with vaccines of various origins. None of the patients showed benefit from this treatment. The mortality was 20 per cent. and 15 per cent. of the patients had relapses.

131. **Ferments in the Blood and Urine in Nephritis.**—Lorenzini's long study of this subject takes up each of the ferments in turn, discussing their proportions in the blood and urine in the healthy and in patients with nephritis. One practical conclusion is that pathologic albuminuria is associated with marked reduction of the lipase in the urine, while the proportion in the blood serum is abnormally high. Generally speaking, all the ferments normally present in the urine appear in reduced amounts in nephritis and especially in severe chronic nephritis. At the same time larger proportions are found in the blood serum, indicating that the ferments in the urine are derived in part at least from the blood.

132. **Differentiation of Exudates and Transudates.**—Maiolo has been applying on an extensive scale the tests for this purpose devised by Montz, Rivalta, Barberio and Gangi. He found the Rivalta and Barberio tests delicate and reliable, while they are extremely simple. Pronounced negative findings with either demonstrate the fluid to be a transudate, while marked positive findings speak unmistakably in favor of an exudate. The fluid secreted by a cancer responds as an exudate. The cerebrospinal fluid gives a constantly negative response to both tests. (Rivalta's acetic-acid technic was described in THE JOURNAL, July 9, 1910, p. 178. A drop of the fluid to be examined is dropped into a glass containing 100 c.c. of water with which 2 drops of acetic acid have been mixed. The drop of organic fluid leaves a little trail like smoke as it sinks down through the water in case of positive findings. Rivalta declares that if the serum gives a positive reaction with much diluted acetic acid, this is an index of the ability of the organism to produce globulins. In health the index is about 1:250. In pneumonia it ranges from 1:400 to 1:2,500. This seroreaction may thus aid in estimation of the probable outcome.)

Russkiy Vrach, Petrograd

XIV, No. 14, pp. 313-336

133 Phobias and Their Treatment. V. M. Bechterew.
134 Pathology and Therapeutics in the Medical Course. A. I. Kakovsky.
135 *The Chemistry of the Stomach: Hyperacidity. S. G. Mintz.
136 Localization of Projectiles in the Tissues with the Apparatus of Lanzevich. N. V. Bruhl.

No. 15, pp. 337-360

137 Wounds of the Lungs. N. A. Bogoraz.
138 *Abolition of Drunkenness among the Russians; the Moral and Physical Uplift. V. M. Bechterew.
139 *Prohibition and Delirium Tremens in Petrograd. S. A. Novoselsky.
140 *Wright's Vaccines. A. N. Antonovsky. Commenced in No. 14.
141 *Radium Treatment of Cancer of the Uterus. T. A. Dobbert.
142 The Plague in Chakhirlakh (Southern Province). M. S. Milman.

No. 16, pp. 361-384

143 Relations between the Visceral Organs. B. P. Balkin.
144 *Wounds of the Abdomen during the Present War. E. P. Franzke and V. A. Gusinin.
145 Recovery in Five out of Six Cases of Tetanus under Magnesium Sulphate. S. T. Derujinsky.
146 *Etiology of Phlegmonous Gastritis. A. L. Vasilevsky.

135 **Research on Gastric Hyperacidity.**—THE JOURNAL described Feb. 10, 1912, p. 447, Mintz' beef extract test breakfast which he regards as a great improvement over the ordinary test breakfasts in current use. This bouillon is homogeneous, stimulates the glands of the stomach to their maximal functioning, independently of psychic factors, while it permits exact estimation of the absolute and relative acidity and of the quantities of gastric juice secreted. With this test bouillon he was able to demonstrate that the stomach possesses a remarkable faculty of keeping the absolute acidity at the same level. He calls this the *Nivellir* or "leveling" property of the stomach. His research has apparently demonstrated that the absolute acidity of the gastric juice, which normally ranges from 5.18 to 4.56 per thousand, abruptly declines when the amount of gastric juice begins to increase above 50 per cent. of the entire volume of the gastric contents. The absolute acidity drops to 3.7 per thousand and below; at the same time the relative acidity of the stomach contents tends to retain its status quo. If such a decline of the acidity did not result, it is clear that with the reduction of the amount of the bouillon which is all the time flowing out into the duodenum, the acidity of the stomach content would have to progressively increase and finally reach abnormally high amounts because the gastric juice, on one hand, is constantly passing out with the bouillon into the intestines, and, on the other hand, more is continuously pouring out of the glands. Even when the food remains in the stomach, the so-called secretion from secretagogues in the food occurs.

With derangement of this mechanism for self-regulation of the acidity of the stomach content, the curve of the

acidity of the stomach content may rise, and may reach a very high figure. In his first article he cited two cases of this secretory anomaly. Since then he has encountered a number of such cases. He regards them as of great clinical interest because this irregularity in secretion was found constantly in his cases of duodenal ulcer. His conclusions from his total series of cases are (1) that the test bouillon shows that the excessive hyperacidity of the stomach contents depends exclusively on the so-called leveling property of the stomach. (2) Because of this self-adjusting mechanism, this digestive hypersecretion does not usually show the increased acidity of the stomach contents; (3) with the Boas-Ewald test breakfast, the increased acidity may be due to derangement of the leveling faculty as well as to increase in the gastric secretion or exaggeration of the motor functioning of the stomach, or both. In regard to the last two factors, the acidity is due not so much to the chemistry of the stomach, as to the peculiarities of the test breakfast of Boas-Ewald, especially the fact that it has such an insignificant stimulating action on the secretion of gastric juice. (4) Knowledge of the leveling property of the stomach easily explains numerous clinical facts which contradict the prevailing theories as to the hyperacidity of the gastric juice, and that its composition is unchangeable. The leveling faculty of the stomach may thus explain the comparatively low acidity of the pure stomach juice taken from patients with constant hypersecretion.

138. **Prohibition in Russia.**—Bechterew points out the economical, moral and physical advantages which the prohibition of the sales of any kind of alcoholic beverages is liable to bring. During the first eight months of the prohibition in force the number of arrests and convictions considerably decreased, while during the seven months previous to the enactment of the law putting an end to the sale of vodka, the number of jail inmates had increased to 12,000. In Moscow the number of petty thefts and robberies was reduced to 40 per cent., and of other crimes by 64 to 74 per cent. In Petrograd and other cities prostitution is also considerably on the decrease. The favorable influence of the prohibition on future generations it is impossible to estimate at present.

139. **Prohibition and Delirium Tremens in Petrograd.**—Novoselsky has been studying the statistics in reference to the recent deaths from alcoholism. Soon after the prohibition of the sale of liquor was enforced, the number of deaths in Petrograd became during the first four months considerably smaller, decreasing by 50 per cent. and for some months even lower. During the last three months, however, it has risen again to the former standard, or even higher, which fact he ascribes to the drinking of denatured alcohol, furniture polish and other substitutes for vodka. Therefore, he says, the effects of prohibition are not decisive, and the assumption is premature that with prohibition in force the undesirable complications of alcohol, such as delirium tremens, etc., must necessarily spontaneously disappear.

140. **Wright's Vaccines.**—Antonovsky has been successfully using Wright's vaccine in the treatment of streptococcus and staphylococcus infection, such as otitis media, empyema, puerperal fever, etc. The dose was less than the 0.5 c.c. recommended by Wright because of the weakened general condition of the patients. Antonovsky used only a diluted (1:10) vaccine, of which he injected 0.25 to 4 c.c. The intervals between injections should not exceed eight or nine days, and must not be less than two days. He recommends these injections for prophylactic purposes before an operation is undertaken or during the transportation of the wounded.

141. **Radium Treatment of Cancer of the Uterus.**—Dobbert treated with radium all kinds of carcinomatous lesions of the pelvic organs, operable and inoperable, and comes to the conclusion that good results can be obtained "with proper technic and patience" in those cases in which the cancer is accessible to the direct action of radium. In such cases the ulcerated area can be brought to a complete cure. Therefore, only operable cases can give good results. Eight recovered of the twelve patients in this group. The deeper the lesion the less hopeful is the outlook. Two operable cases became inoperable during the radium treatment. Dobbert prefers to operate if there are no complications or contraindications, though he thinks that a previous radium treatment is liable to increase the chances for ultimate recovery. In eleven inoperable cases of carcinoma of the pelvic organs the radium treatment arrested in seven the further progress of the disease, but for a short time only. He does not use more than 50 mg. every five or six days, for twenty-four hours. After the third or fourth application a white coating is observed, and then the treatment is interrupted until the coating clears away, which may take several weeks or months. The radium is placed in the previously dilated uterine cervix; the dilatation helps the draining of the uterus and discharge of pus. There was no rise in temperature even under the twenty-four hours application of radium.

144. **Abdominal Wounds in War.**—Of 5,200 wounded that came under Franzke's care in one of Warsaw's Red Cross hospitals, only 1 per cent. were wounded in the abdomen, either by rifle (38 cases) or by shrapnel (21 cases). The shrapnel wounds proved to be much more dangerous; 44 per cent. died, all except one from peritonitis. The intestinal wounds proved to be the most dangerous (65 per cent. mortality), bladder wounds occupying the second place. Conservative treatment, especially with superheated air to the abdomen when peritonitis developed, gave a considerably smaller mortality than operative measures. Operation is to be recommended during the first few hours following the wound; the mortality then was but 16 per cent.; twelve hours later the mortality was 60 per cent., and after twenty-four hours, 70 per cent. Such early operations are impossible during the war, as the patients arrive from the battlefield too late. Therefore, he recommends to abstain from transportation of such seriously wounded patients to city hospitals, and advises to carry them to the nearest house or any habitable point and have the operation done immediately. Gusinin advocates the conservative method of treatment of abdominal wounds. Only recent cases were operated on, with very sad results. The cause of the serious peritoneal complications was the simultaneous lesions of several abdominal organs, mostly the intestines. He advocates draining in infected abdominal wounds.

146. **Phlegmonous Gastritis.**—This, according to Vasilevsky, is a secondary complication during some general infection, such as erysipelas or typhoid. In his case the erysipelas spread to the mucosa of the mouth, pharynx, esophagus and stomach. Necropsy showed lesions resembling those of typhoid in the intestines, and pus all over the mucosa with infiltration of the submucosa. The stomach contents contained much pus. Bacteriologic examination showed streptococci.

Hospitalstidende, Copenhagen

August 11, LVIII, No. 32, pp. 793-816

147 Ether during Natural Delivery. (Om Anvendelsen af Aether som Anæstheticum ved den naturlige Fødsel.) H. L. Christensen.

Hygiea, Stockholm

LXXVII, No. 14, pp. 769-832

148 Retroperitoneal Sarcoma; Two Cases. G. Petren.

149 Retroperitoneal Perforation of Duodenal Ulcer: Recovery. G. Petren.

150 Pitchfork Injury of Bladder and Intestine; Recovery. G. Petren.

Ugeskrift for Læger, Copenhagen

August 12, LXXVII, No. 32, pp. 1307-1336

151 *Folding Obstetric Table; Portable Part Screwed to Stout Table. (Et nyt Fødselsleje.) H. Tvedegaard.

152 *Historical Sketch of Obstetric Tables. (Lidt om vort transportable Fødselslejes tidligere Historie.) E. Ingerslev.

151-152. **Obstetric Table.**—Tvedegaard gives an illustrated description of an adjustable seat, back and leg rest contrivance which can be screwed firm on any large table, while it folds up into small compass to be carried about. Ingerslev gives a historical sketch of such aids in confinement. Tvedegaard's table leaves ample space for the obstetrician while it does away with the necessity for assistants.